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LEGISLATIVE BRANCH APPROPRIATIONS FOR 1987

HEARINGS

BEFORE THE

COMMITTEE ON APPROPRIATIONS

WITH THE PARTICIPATION OF

COMMITTEE ON HOUSE ADMINISTRATION

HOUSE OF REPRESENTATIVES

NINETY-NINTH CONGRESS

SECOND SESSION

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PART 3

TELECOMMUNICATIONS IN THE LEGISLATIVE BRANCH

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TELECOMMUNICATIONS IN THE LEGISLATIVE BRANCH, FISCAL YEAR 1987

Opening Statement

Mr. Fazio. I would like to convene this hearing on telecommunications in the Legislative Branch of Government.

Telecommunications policy and information and data exchanges are the life blood of the legislative process. It is appropriate for the Legislative Branch Subcommittee on Appropriations to review the opportunities and challenges that confront the Congress and agencies within our jurisdiction on Capitol Hill.

We have asked the committee of jurisdiction as relates to the House of Representatives, the House Administration Committee to participate with us. Mr. Charles Rose, Chairman of the Subcommittee on Office Systems, is here and Mr. William Thomas, ranking minority member, have joined us for the hearing.

We welcome them. They have a great deal of background and information about the process and certainly we invite them to fully participate in the process to gather more information on the costs and planning for this technology.

I hope to conduct the hearings in a manner that will be open to members of both subcommittees to interject at any time.

The general purpose of the hearing is to determine the current overall cost of telecommunications for the Congress and legislative agencies and to explore the potential for cost savings made possible by the deregulation of the telecommunications industry.

CHANGES IN TELECOMMUNICATIONS INDUSTRY

The industry, formerly a virtual monopoly and highly regulated, has undergone significant change in recent years. Once limited to providing basic telephone services, telecommunications now include voice, data and image communications. Deregulation of the industry has resulted in competition for telecommunications equipment and services.

Telecommunications managers can no longer satisfy requirements through services from "the telephone company." They now choose among vendors for the services and equipment which meet their needs on a cost effective basis.

Additionally, the increases in teleprocessing, personal computer use, and office automation technology have created a keen awareness of telecommunications and attendant costs.

IMPACT OF NEW TECHNOLOGY

As computer technology has become an integral part of telephone systems, telecommunications and data processing functions are often merged into a centralized Office of Information Resources (OIRM), particularly in larger entities. Additional staff is required to perform the telecommunications planning, engineering, and management functions that were previously performed by the telephone company.

The Congress and its agencies currently spend over $21,000,000 annually for telephone services and facilities, which does not include all data communications. So, we do not know the current total cost of telecommunications for the Legislative Branch.

The $21,000,000 is a floor. We could be spending $30,000,000 or more for these services. The House, Senate, and the larger agencies are presently in various stages of competitive acquisition for new telephone switching systems, based on digital technology to modernize telephone services and potentially reduce costs.

The Congress and the larger agencies have individual data communication capabilities which include special data networks, cable systems, and local area networks in and among these agencies. Each also has personnel assigned in the areas of telecommunications planning, management, and technical support.

OBJECTIVES

The specific purposes of these hearings are to determine the magnitude and cost of current telephone services and data communications; to develop the plans and associated costs for telecommunications enhancements; and to assess the feasibility and desirability for the reduction of costs and the improvement of operational effectiveness. This may be achieved by consolidating some or all of the telecommunication services for the Congress and its agencies.

We have begun the process of addressing these issues. The House has decided to contract with the AT&T and the Senate more recently decided to go with C&P.

We have a plethora of jurisdictions in telecommunications as it relates to authorizing committees. There is an interest on the part of the Public Works Committee which possibly would be involved with the Architect of the Capitol in any of the structural changes required.

The Government Operations Committee has authorizing responsibility for the General Accounting Office, and there are joint committees which have some responsibilities for the Library of Congress and the Government Printing Office.

The Appropriations Committee does not intend to traverse on the turf of any of our friends or colleagues, but this Committee is unique in that it encompasses, through the appropriations process, all of the agencies in the Legislative Branch.

These hearings provide a good opportunity to begin to understand the telecommunications alternatives and what they will commit us to and further provide or limit opportunities in telecommunication decisions.

It is eminent time for a hearing on this subject because many of the agencies are on the verge of making fundamental decisions on telecommunications.

I would like to yield to Mr. Rose for any statement you might make.

REMARKS OF MR. ROSE

Mr. ROSE. Thank you.

I don't have an opening statement as such, except to say that I have a long-standing interest in seeing the House work properly, especially in the area that we are concerned about here today and that is in how we provide for the infrastructure of the Congress.

We are in a new telecommunications era.

It is very important that we do the best we can to coordinate and select the finest equipment, and the finest services for the House.

I have been impressed that the Clerk has been sensitive to that also and through the years has had people working with and for him who have endeavored to give us the best service.

Without saying any more, Mr. Chairman, thank you very much for letting us participate in what are your hearings. We share a responsibility, Mr. Thomas and I, in the authorizing committee and you in the appropriation of the money.

We thank you for delaying your hearings until after the Senate has had time to, theoretically anyway, make a decision and we will see where we go from here.

Thank you, sir.

Mr. FAZIO. Thank you, Mr. Rose.

As I indicated, I know you have a background in this whole area that goes back many years. Since you have been on the House Administration Committee you have spent a great deal of time in and around this subject matter.

At this time, if Mr. Thomas has a statement, I would be happy to yield to him before we begin with our first witness.

STATEMENT OF MR. THOMAS

Mr. THOMAS. Thank you.

House Administration has just evaluated a new telecommunications system for the House of Representatives and as the Chairman indicated, there is no longer "just a telephone company." It means there is no longer "just a telephone service." We have got particularized needs for the House of Representatives and for the differing agencies.

The agencies seek out different services. I think it is useful to investigate the possibilities of coordinated acquisition and use. It is much more complicated than it was just five years ago and we are in the quandary of trying to determine our telecommunication needs for the future. Companies are learning from the process and they have already begun adjusting what it is that they are offering or the way in which they offer it.

I think we can learn from this, Mr. Chairman, as we go out toward the agencies in that after the third or the fourth round I think the companies will be in much better position to understand what the particular needs of this institution and its agencies are

and we are going to have to talk about coordinating purchases, leasing, servicing arrangements through a series of agreements rather than just one single one that would encompass all.

Mr. FAZIO. Thank you for your comments.

These discussions will be particularly relevant tomorrow as we listen to other public and private agencies, who have undertaken similar activities recently. We will benefit from an explanation of the approaches they have taken.

One of the questions is going to be the time frame in which to make a judgment given the movement of technology. Let's proceed with our witnesses.

MONDAY, APRIL 28, 1986.

OFFICE OF THE CLERK

WITNESSES

BENJAMIN J. GUTHRIE, CLERK
W. RAYMOND COLLEY, DEPUTY CLERK
STEPHEN C. DUFFY, ASSISTANT TO THE CLERK
MICHAEL L. MURRAY, ASSISTANT COUNSEL
ROBERT S. McGUIRE, CHIEF, FINANCE OFFICE
SUSAN L. ZELENIAK, TELECOMMUNICATIONS COORDINATOR
BOYD ALEXANDER, DIRECTOR, HOUSE INFORMATION SYSTEMS
BUD COLLINS, INFORMATION RESOURCES OFFICER, HOUSE INFORMATION SYSTEMS

Mr. FAZIO. Our hearings will be held in three sections, morning and afternoon today, and morning tomorrow. We are going to move as rapidly as we can, but we do want to give the Members the opportunity to question witnesses.

There is a rather standard line of questioning that will be applied to the witnesses who comes before us. Much of the information that we seek can be placed in the record because it simply is data, quantitative information that we need. I would like to at least cover the Office of the Clerk of the House and HIS this morning along with the Library of Congress.

It may be possible for us to get to the GPO before we break. We will have to see how we proceed.

I would like to provide a little background before I call on Ben Guthrie, Clerk of the House of Representatives, to provide testimony.

Boyd Alexander, Director of the House Information Systems will also testify in this group before we move on to the Library of Congress.

I see Bill Welsh from the Library has joined us. We appreciate the efforts you have made to be here.

OVERVIEW

The House obtains telephone services and equipment jointly with the Senate from the C&P Telephone Company and AT&T Information Systems. This is the current situation.

A centralized operator service jointly staffed by House and Senate employees is located in the Dirksen Office Building. Both policymaking and day-to-day administration of telephone services for the House is under the House Administration Committee. Requests for telephone equipment and lines are reviewed and authorized by the Administration Committee who subsequently orders most of the services directly from the C&P, AT&T or other communications suppliers, for example, the GSA in the case of FTS.

A staff within the Office of the Clerk orders long distance services, for example WATS, upon receiving authorization from the Administration Committee. This staff also verifies bills, coordinates services, and provide technical assistance to the Administration Committee.

The House Information Systems office generally orders telecommunications services and facilities from the C&P Telephone Company and commercial data networks. The HIS also has regional telecommunication networks, local area networks, and uses both the Congressional Cable System and the telephone company facilities for data communications.

The House is presently in the process of procuring a new telephone switching system based on modern digital technology. The Senate is also in the process, and is moving along rapidly to completion.

The House requirements were added to the Senate solicitation. Vendors were to make proposals as individual systems for the House, the Senate, and a joint system for both.

I believe we are up to date on the decisions that have been rendered the last several months in that regard.

INTRODUCTION OF WITNESSES

Ben, good morning. Nice to see you. We appreciate the fact you and your staff are here.

Why don't you make the introductions and help us understand what is going on here in the House in the telecommunications process.

Mr. GUTHRIE. Accompanying me are Susan L. Zeleniak, Telecommunications coordinator, W. Raymond Colley, the Deputy Clerk, Bob McGuire, Chief of the Finance Office, Stephen Duffy for telephones, and Mike Murray is the Assistant Counsel to the Clerk.

With that I want to provide you the information to the subcommittee on any aspect of telecommunication operation within the House that involves the Clerk's Office.

CLERK'S OPENING STATEMENT

I anticipate that Susan will be our principal witness. She has been very much involved in all activities relating to this subject. Mike has been concerned with certain legal questions, and, of course, Bob is concerned with the need to have adequate funds appropriated and paying the bills for services.

The Clerk's office is involved in various aspects of telecommunications, including liaison with the Committee on House Administration and its Subcommittee on Office Systems, the various vendors, the operation of the telephone exchange with the Senate, auditing and paying of vendors' billings, and, as stated, the overall question of the budget.

It has been our understanding that the subcommittee wished to pose certain questions regarding telecommunications. Accordingly, we have not endeavored to present any lengthy statement.

The Clerk, and the staff, will certainly seek to assist the subcommittee in any feasible manner. At this time we are ready for your questions.

[The statement of Mr. Guthrie follows:]

STATEMENT OF BENJAMIN J. GUTHRIE, CLERK OF THE HOUSE

Mr. Chairman, Members of the Subcommittee:

I am here today to provide information to the Subcommittee on any aspect of the telecommunications operations within the House that involves the Clerk's Office, and I appreciate your invitation.

Joining me at the hearing are various individuals who may be of help to the Subcommittee: W. Raymond Colley, the Deputy Clerk; Stephen C. Duffy, Assistant to the Clerk; Michael L. Murray, Assistant Counsel to the Clerk; Susan Zeleniak, Telecommunications Coordinator; and finally, Robert S. McGuire, Chief, Finance Office. I anticipate that Susan will be our principal witness; she has been very much involved in all activities relating to this subject. Mike has been concerned with certain legal questions, and, of course, Bob is concerned with the need to have adequate funds appropriated and paying the bills for services.

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H.I.S. OPENING STATEMENT

Mr. FAZIO. Perhaps we should ask Boyd to also make a comment at this time and introduce your assistant.

Mr. Collins, is it?

Mr. BOYD ALEXANDER. That is right. Thank you, Mr. Chairman.

We appreciate the opportunity of being here this morning. This is Bud Collins who is with our communications section in HIS.

I would like to go ahead and move on with the hearing. I would make one point that a few years ago data had very little activity in the way of telecommunications.

It was mostly in the computer system itself or in the room. Currently about 20 percent of the traffic in the House on the telephone lines is data. So it is a significant amount.

Mr. FAZIO. Twenty percent?

Mr. BOYD ALEXANDER. About 20 percent of the total traffic; Computer systems and data processing systems have come together and I think it is important to keep that in mind as we discuss those this morning. I am available for any questions, Mr. Chairman.

Mr. FAZIO. We will place your statement in the record at this time.

[The statement of Mr. Boyd Alexander follows:]

STATEMENT BY BOYD ALEXANDER, DIRECTOR, HOUSE INFORMATION SYSTEMS

My name is Boyd Alexander and with me is Henry (Bud) Collins who is with our Communications Services group. I want to thank you for the opportunity to participate in the hearings on voice and data communications in the House of Representatives. Computer technology and telecommunications technology are becoming more and more entwined and their interrelationship is in a state of flux. I see my contribution to these hearings as one of providing information (from our strategic plan) on the current and near term use of data communications within the House of Representatives as well as between the House and outside destinations.

To provide some perspective on communications requirements of current data processing services provided by H.I.S., I should like to mention their diversity. In addition to Member offices, House committees, and the Clerk and the other Officers

of the House, H.I.S. serves the Congressional Budget Office, the General Accounting Office, the Office of Legislative Counsel, the Law Revision Counsel, the Office of Technology Assessment, the Prospective Payment Commission and the House Restaurants which are administered by the Architect of the Capitol.

In serving these users:

We support business systems (such as payroll, vouchers, accounting, and inventory control),

We support text processing (we produce draft copies of committee hearings and reports),

We maintain information storage and retrieval facilities (such as LEGIS, the AP Newswire Service and Electronic Mail),

We handled Federal budget projection, scorekeeping and analysis (H.I.S. supplies over 75% of the data processing requirements of the Congressional Budget office),

And we operate the Electronic Voting System.

H.I.S. estimates that between 15% and 20% of all traffic on the current telephone system is used for data communications. This represents a significant volume of usage and underscores the need for reliable communications services for both voice and data in the House of Representatives.

This concludes my statement and I am pleased to assist the Committee in any way I can.

CURRENT TELEPHONE SYSTEM AND BUDGET

Mr. FAZIO. Susan, begin by telling us a little about the telephone service in the House, the size of the system, the number of lines and many instruments, and the total cost of telephone services for the current and fiscal year.

Ms. ZELENIAK. Currently the House has 12,200 telephone numbers, that is 225 and 226 exchanges. We have about 13,900 telephones. The estimated cost for all House telephone service in fiscal year 1986 is $14.4 million.

This figure includes everything we pay for, including local service and equipment, toll bills and the Member's WATS service, as well as FTS service after five o'clock.

Of this $14.4 million, $5.3 million is requested by the Clerk in the fiscal year 1986 budget. The remaining amount of money comes directly from committee and member budgets and allowances, primarily for the WATS.

In 1987, we project that we will need about $25.2 million for the phone system. $15.6 million has been budgeted by the Clerk for the procurement of the new telephone system.

The remaining $7.6 million is primarily for the long distance services which would still come from the Member's allowance.

Mr. FAZIO. That is a major increase over the normally small percentage increase over the prior year.

Ms. ZELENIAK. Yes, Mr. Chairman.

Mr. FAZIO. That is for the procurement of the new systems.

Ms. ZELENIAK. Yes.

GENERAL DISCUSSION ON PURCHASING EXISTING SETS

Mr. FAZIO. The telephones are currently leased?

Ms. ZELENIAK. Yes. That is right.

Mr. FAZIO. The House doesn't own any telephones at the present time?

Ms. ZELENIAK. We own about 175 single line telephones that are used for FTS after hours that we bought from GSA about a year ago. Other than those, we do not own our telephones.

Mr. FAZIO. Why weren't the telephones purchased when the opportunity was made available to all other Federal agencies?

Ms. ZELENIAK. In December of 1983, such an offer was made to the various agencies. My understanding is that it was never made to the Clerk.

It may have been made to the Committee on House Administration by GSA, C&P, or AT&T. I am not knowledgeable about that except to say that it was not made to the Clerk.

Mr. THOMAS. Vic, at that point let's try to clarify that. Can anybody from House Administration tell us if the offer was made to House Administration?

Mr. FAZIO. Is there someone here from the House Administration staff who wants to comment on that?

Mr. THOMAS. My recollection, it was not, but I don't want to have the record state it may have been.

Mr. FAZIO. At this point, unless somebody can clarify it further, the purchase plan was not offered. The opportunity did not occur so a judgment was not made. Is that correct?

Ms. ZELENIAK. To the best of our knowledge, that would be the case.

DISCUSSION ON PURCHASE OF EXISTING TELEPHONES

Mr. THOMAS. My understanding is that there were some very preliminary discussions never going beyond the introductory stage because the only offer that was ever made was that the House would purchase all of the equipment and that it was understood that it was obsolete at the time.

They were no longer manufacturing it, that way in which the switching system would be maintained would be when others switched over to more modern equipment we should get the used equipment they no longer wanted to try to update our system with the understanding that we were going to have to, because of data and other requirements, change the system entirely.

We continued with the leasing but provided Members with additional monies in their telephone accounts to cover the cost of moving if it was necessary. I believe Mr. McGuire was with the committee at that time.

Did we include a kind of quasi-documented $3,000 on telephones for the purpose of covering the cost of moving?

Mr. MCGUIRE. In about 1977, we added funds for the relocation of phones. At that time we put in about $2500 to $3000. I don't recall specifically.

Of course, that number went into the basic account which has grown from $32,000 to $67,000 in that ten year period.

Mr. THOMAS. We anticipated the cost for changes with the old equipment and in discussing the transfer from the old system to the new system, we discussed among ourselves a lot in attempting to try to time it to the time the House would change over, Mrs. Zeleniak, in terms of the downside versus the upside is totally valid.

We were looking at a minimum, five year to ten year Congressman's use of equipment. I know those of us who are here now would very much like to see it done at the time we are here mean-

ing now, but for a smooth transition and for the equipment to be done in place and utilized properly, we kind of had to look beyond this upcoming Congress to the next five to seven and do it in as timely but an orderly fashion as possible.

It would have been nice if everything fell together, but we felt that was not the highest priority. The highest priority was putting in a new system and putting it in right.

Mr. FAZIO. Does that get to the issue whether you lease or own?

Mr. THOMAS. If we had owned the equipment, we would have owned obsolete equipment, which was not being manufactured at the time which for repair purposes could only be utilized out of cannibalized sources and that we thought since the changeover was going to occur fairly quickly, we would then have even more outdated equipment than we had at the time we purchased it and so from a cost effective factor continue on with leasing.

We provided money for the changeover to cover Members during that period and then move on to the new equipment which of course would be modular.

You could unplug it and it would be part of your inventory and move with you from office to office as we talked about.

Mr. FAZIO. If anybody has any further information on that, we will add it to the hearing record. The question comes up, of course, because there clearly was a pattern in other Federal agencies of that occurring. Decisions to purchase were generally made at that time because there were projected savings that would result from purchase over lease. Is that correct?

Ms. ZELENIAK. Yes.

EQUIPMENT INVENTORY

Mr. FAZIO. Does the House maintain the inventory of equipment or does the vendor?

Ms. ZELENIAK. It is within the vendor's records at this point. The House has not conducted a survey of telephone equipment to date. It has not been requested of the Clerk to do so and we don't have the staff at this time to do an inventory.

Mr. FAZIO. The data you have is obtained from the telephone vendors?

Ms. ZELENIAK. Today we get bills and attempt to verify those bills as best we can, and that bill becomes our inventory. Members each receive a copy of their equipment bill monthly and we oftentimes get inquiries as to the accuracy. We then will ask the vendor to do a survey of that office and try to correct the bill for the Member.

Mr. FAZIO. Mr. Lewis?

Mr. LEWIS. I was curious because inventory is a very valuable item. In this day and age where phones can be plugged and carried out or whatever I would think we should have some systematic central accounting of what we have in case the company says to us or companies say, "Hey, our equipment is not here. Where is it? You pay for it." We should have some means of counter-checking.

Ms. ZELENIAK. Most of the equipment we have today is not unpluggable. The heavy cables that we use require a hard wire into

the wall so that most of the time they cannot be easily removed unless you cut the cable.

We hope that as part of the new phone system we will conduct an inventory as the equipment is installed. The contract includes an inventory system where equipment will be numbered because telephones will be pluggable and unpluggable.

We would then be able to verify on the bill the numbers on the phones that are in a particular office. So we do hope we will be able to maintain an inventory.

DISCUSSION ON NEW MULTIYEAR AT&T CONTRACT

Mr. FAZIO. That is part of the contract for equipment. That information will be available under the new arrangement.

Ms. ZELENIAK. That is right.

Mr. FAZIO. As I understand it, the current contract with C&P runs out in July of 1986.

Ms. ZELENIAK. Yes, Mr. Chairman.

Mr. FAZIO. There are a number of questions relating to telecommunications costs, inventory and contractual proposals, that we would like for the record.

[The questions and responses follow:]

TELECOMMUNICATIONS COSTS

Question. What are the major cost items and the related costs? (Provide a detailed breakout of all costs for the record.)

Response. The most significant cost item is the Members WATS network. Combined with Member toll bills, this amount is $6.8 million annually. Equipment rental amounts to $3 million dollars per year and local Centrex service amounts to $2.9 million per year.

Question. How much could we have saved to date had we purchased the existing equipment when we had the opportunity?

Response. It is difficult to estimate the expected savings if the House had purchased the existing key equipment since the exact purchase price is not available. However, using prices provided to GSA as a basis and accounting for yearly maintenance, savings to this date would amount to approximately $4 million dollars.

INVENTORY

Question. Please provide a copy of the last inventory for the record.

Response. As there is currently no inventory procedure, a copy of the inventory cannot be provided.

Question. What portion of current costs are for equipment leases?

Response. Approximately 22% of the current telephone costs are for leased equipment.

C&P PROPOSAL

Question. Didn't C&P offer a new contract some time ago which included an upgrade of our present services?

Response. I understand that C&P submitted a proposal to the Committee on House Administration on October 8, 1984 for an upgraded Centrex service to be provided under an extended contract.

Question. Would it have provided us with modern switching capabilities?

Response. Yes, the C&P proposal provided for installation of a DMS 100 digital switch to serve the House.

Question. Would it have changed our present costs, and if so, how and by what amount?

Response. The C&P proposal recommended that in addition to a long term Centrex contract, the House should install a universal wiring plan and purchase electronic telephone equipment to enhance service and provide additional savings. Several payment options were provided. According to C&P, the House could realize sav-

ings of $13 million by year 5 and $44 million by year 10. The break even point occurred at 2.7 years.

Mr. FAZIO. Let's continue. A new multi-year contract is being developed with AT&T for a new telephone system. Tell us what the new system will provide us in terms of service?

What specifically will be available as a result of this decision.

I would encourage our friends from House Administration who know more about this to jump in.

Ms. ZELENIAK. The contract calls for replacing the entire telephone system except long distance. We would be replacing the switching equipment, that part which gives you the dial tone and makes the phones work.

We will be replacing all of the instruments and all of the cable that connects those instruments to the system. The instruments are multi-button, multi-feature and offer all of the features we have today and some additional ones that we are not currently able to provide.

Mr. FAZIO. What kinds of features?

Ms. ZELENIAK. Some of the data capabilities from the telephones that we don't have today will be available with the new system. Things like speed calling, call coverage and being able to forward your lines will be much easier because there will be button access rather than access codes.

So we expect people will use more of those features because they are easier to access. The biggest advantage to the new telephones is that we will be able to move them easier and make changes to them more quickly.

In that regard, we will be able to provide a better grade of service to the Members and the committees because when you need telephone work done, rather than having to wait a week or longer, it will probably be able to be done within a day or two.

That will probably be the biggest advantage from the user perspective.

Mr. FAZIO. Will the transition in July of 1986 be made in a smooth manner? Is it possible to pass from one system to the next without a great deal of interruption?

I am beginning to be aware of some of the concerns of my colleagues.

Ms. ZELENIAK. I don't think there is any way to make the transition by July of 1986. Installing a new telephone system and new cable is a very timely process and probably should be given at least a year if we want to assure that it is successful.

Mr. FAZIO. The current contract will have to be renewed or extended?

Ms. ZELENIAK. Basically we would enter an agreement to pay month to month after July of 1986.

Mr. FAZIO. Will that extension be provided at current cost or will it be higher cost? What do you expect to be the fiscal effect on the Legislative Branch?

Ms. ZELENIAK. The Clerk requested that C&P provide an estimate of those costs when the contract expires. It will be about $25,000 more per month until we cut over the new phone system.

Mr. FAZIO. Has C&P offered an upgrade on the existing contract for this purpose?

Ms. ZELENIAK. The Clerk was provided a copy of a letter that was sent to the committee extending that contract, but it would be a long-term contract. We would not be able to extend it for the period of time that it would take us to install the new phone system.

Mr. THOMAS. Mr. Chairman, one of the points not mentioned which was very attractive to Members as we discussed it was that with the new equipment, the switching equipment itself will be in the physical control of the House of Representatives. This was not mentioned.

In fact, it was one of the key points between C&P and AT&T.

As a matter of fact, it is my understanding that on the Senate bid C&P which could not offer on-site switching for the House, offered it for the Senate. This is one of the points I wanted to make about the companies in terms of learning the process and changing their bids as they go.

What could not be done on the House side could be done on the Senate side after it was discovered that Members found this to be an extremely important factor, control of your own physical facility.

That was not mentioned and I did want to mention it. The C&P bid was substantially different in terms of on-site service which at the time repeatedly in front of House Administration Committee, C&P said could not be done.

ADMINISTRATION OF HOUSE TELEPHONE SERVICES

Mr. FAZIO. I am glad you brought that out. I guess at this point we should talk about the various entities that operate within the Clerk's system that have impact on the telephone and the administration of the telephone service.

Ben, you have a small staff within your operation.

Mr. GUTHRIE. Yes.

Mr. FAZIO. Susan heads it, is that correct?

Mr. GUTHRIE. Yes.

Mr. FAZIO. There are several questions concerning staffing within the Clerk's Office and costs for the new House telephone systems to be answered for the record.

[The questions and responses follows:]

ORGANIZATIONAL REQUIREMENTS

Question. Please provide organizational, staffing and cost information for telephone ordering organizations

Response. The Clerk's Office does not order telephone equipment or local services. This function is performed by the Committee on House Administration and this office is notable to provide their organizational staffing and costs. This office does order long distance services, as well as keeps all line assignment records, verifies all billings, prepares necessary vouchers and responds to requests for assistance from Members and Committees. This staff includes one Telecommunications Coordinator, 2 billing administrators and one secretary at an annual cost of $116,000.00.

Question. What specific equipment facilities and services are being procured?

Response. AT&T will provide the House with 2 System 85 telephone switches to be installed in 5 House buildings. The system also calls for new telephone instruments and a universal wiring system. The system will provide additional management and administrative capabilities designed to improve service and further reduce costs.

COSTS OF NEW SYSTEM

Question. What is the planned cost for the new telephone system?

Response. The purchase and installation cost of this system will be $13.4 million dollars with an additional $1 million dollars in options still under consideration. The costs for maintenance, growth, operations and local trunking will average $1.9 million dollars per year with an annual addition of $535,000.00 in services still being considered.

Question. What are the major cost elements?

Response. The major cost elements for the purchase and installation include:

Switching equipment and software	$6,255,000
Telephone instruments	3,410,000
Installation	3,100,000
Cable	462,000

The major cost elements for the yearly operations and maintenance include:

Growth, moves, changes	$660,000
Maintenance	711,000
Trunks and access charges	500,000

ANTICIPATED SAVINGS

Question. What savings are expected as a result of this procurement?

Response. If costs continue to rise at current rates, it is expected that the House could save up to $50 million dollars over the 10 year life of this system. The break even point occurs after 3 years.

Question. Please specify the sources.

Response. The primary source of savings occurs as a result of purchasing the telephone instruments. Approximately $36 million, or 72%, of the savings comes from this one source. Additionally, the fixed prices for growth and maintenance provided by this contract result in savings of $7 million (14%). And finally, the ability to more easily perform moves and changes should result in savings of $5 million dollars (10%)

Question. How much of the cost savings will be because we are buying the telephones instead of continuing to lease them?

Response. The combined savings that result from the purchases of the telephones is approximately $41 million dollars or 82% of the total system savings.

PURCHASE OF NEW EQUIPMENT

Question. Are these actions dependent on a new switch? Can they be done separately?

Response. The purchase of new instruments could be done apart from the purchase of a new switch. However some of the capabilities for providing easy moves and changes could be lost, dependent on the type of phone systems used.

Question. If we preferred, could we buy new telephones and modify our present system to handle moves and changes and then procure a switch plus related services separately?

Response. Yes, if preferred you could buy new instruments and modify the current system to perform moves and changes and later buy a new switch. However, the switch requirements must then meet compatability standards with the instruments already purchased.

Question. What would that cost?

Response Such costs have not been specifically requested from the vendors, however the approximate costs would be:

Telephone instruments	$3,500,000
Universal wiring	1,500,000
Change feature	150,000

Question. What would be the advantages or disadvantages of having that?

Response. Advantages:—Requires less capital at this time; results in significant savings; provides enhanced service; provides better services as a result of faster moves and changes.

Disadvantages:—Lose some of the instrument capabilities that are dependent on the switch; must later select a switch compatible with the instruments; only controls costs associated with the instruments.

Question. Where will the new telephone switches and associated equipment be installed?

Response. It is my understanding that the exact space for the installation of the telephone switching equipment has not yet been determined. The AT&T proposal called for space in the Rayburn, Cannon, Capitol, Annex I and Annex II.

Question. Will it be necessary to string new or temporary wiring through the halls?

Response. In order to reduce requirements for temporary wiring, a phased installation will be used. New riser cable which extends from the basements to each floor will first be installed. The switch will then be installed using existing telephones and the new telephones will later be installed on a phased basis. This will hopefully minimize the amount of exposed wire as well as inconvenience to Members and staff. However, there may be some cases where such a situation cannot be avoided.

Question. When will the new switches be installed and fully operational?

Response. The exact installation dates have not yet been determined. However, I would recommend that at least one year from contract signing be allowed for the installation of the switch and an additional 4 to 6 months for installation and training on the new telephone sets.

Question. Will the installation be done all at once with new cabling and telephones when it is cut into operation, or will it be phased? If phased, how so? What is the schedule?

Response. As discussed earlier, the riser cable and switch will first be installed using existing telephone instruments. The installation of new station cable and instruments will then be phased over several months. The exact schedule will be defined after contract signing.

Question. When the new House telephone system is in operation will we have the same grade of service as we do now?

Response. The RFP requirements stipulated a grade of service equal to that which we receive today.

DIVISION OF RESPONSIBILITY

Mr. FAZIO. The Clerk's Office handles all the telephone services we provide the Members and H.I.S. Office handles telephone circuits and equipment, as it relates to data communications.

How do you make a distinction? Is this a logical division of responsibility or is it something that has grown through the years as we developed data systems in addition to telephone systems?

Mr. BOYD ALEXANDER. Procurement of telephone services is all coordinated through the Clerk's Office. H.I.S. orders the components that the computers need, for example, the rotaries that are in the computer center that go into our communications processors.

I think we have a good arrangement with the Clerk on the coordination of this whole effort. We have also a staff who are involved in communications. That communications staff is involved with the phone lines as well as hard-wired circuits. For example, the Finance Office and some other users don't go through the phone lines, they are hard-wired.

ANTICIPATED EFFECT OF POST-ELECTION OFFICE MOVES

Mr. LEWIS. Mr. Chairman, you overlap questions regarding control of equipment and installation of equipment between the Clerk's Office and the telephone system and the computer systems. It has come recently to my attention from a number of Members that their offices are becoming aware of a very sizeable individual charge that may be made if a Member should move his or her office.

That involves the taking out of equipment from one office and moving it to another and counting per office, it is apparently very, very high.

Susan, you referenced the lack of a plug-in system and indeed the lack of historical accounting of equipment that may be there.

It seems it is pretty obvious that in something less than a year we are going to be involved in the massive movement business again with new membership coming in, offices rolling all over the place. It sure seems crazy to me at that point in time to be in a position where we are going to go in and clip wires, if you will, and put the hard lines back in again, then sometime later the next year, come in and install plug-in/plug-out systems duplicating the cost.

Mr. FAZIO. My understanding is that was anticipated and there were to be overlapping efforts made. I don't know whether that is going to happen.

Mr. LEWIS. Are we going to be ready by the time the new membership comes in to minimize that cost and to—it seems this is a wonderful opportunity for a demonstration project we probably will miss.

If we are going to miss it, why?

Ms. ZELENIAK. I believe the original intent was to try and convert the system about the time of the election moves.

My own belief—and this is not to say that the conversion could not be done between now and then, but my own belief is that to try and make that change between now and December would result in a disaster. This is my own personal opinion based on past experience with large cutovers.

There is considerable coordination required, records to organize, training that must be done, and construction that has to be completed. There is an awful lot of work.

For everybody you try to push, you minimize their time to get their job done right. I would be concerned at trying to push this job too quickly.

I realize the savings that could be made, but I think the disruption that could occur has a greater cost than we would pay for moving phones.

Mr. LEWIS. It is not just moving phones around, it is moving phones, computer equipment, it is apparently a pretty massive or visible undertaking for each office.

Mr. FAZIO. It could mean sizable down time to some offices and Members which could have an effect on a Member's ability to conduct business.

Ms. ZELENIAK. The plan we have been working on would hopefully minimize disruption as much as possible. We would install the new switching equipment on the existing telephones so that you wouldn't come in and find you don't have phone service at all.

Then on a time convenient to each office, we would replace the station equipment. Whether that was done after-hours, on a weekend basis, or during a recess, we would try to minimize to the Members the amount of disruption.

Mr. FAZIO. Typically, what is the cost, if a Member moves from Longworth to Rayburn, what is the time and cost involved in making an average a one-time move?

Mr. THOMAS. Before the breakup and after the breakup?

Mr. FAZIO. Either way. Or both.

Ms. ZELENIAK. I don't know that the breakup had as much effect on moving telephones as much as rising labor costs. The kinds of phones we have now require a great deal of labor to actually pull cables, take out instruments, move them and re-connect them.

It is all a hard wire connection. Right now it costs somewhere, depending on the size of the office, between $3500 and $5000 to move the phone equipment alone. I can't speak to the office or data equipment.

Mr. FAZIO. Boyd, do you want to comment on what it costs to move a word processor and a printer?

Mr. BOYD ALEXANDER. Mr. Chairman, I don't have those costs. We will get them. I would say the last move didn't have the problems we will be facing this time. You and Mr. Lewis are correct, the amount of cabling that has been done in Member offices and in committees for in-office computer systems is extensive.

[CLERK'S NOTE.—The House Information Systems provided the following information for the record:]

The costs of moving Member office computer equipment is built into their vendor's maintenance contract, so there is no direct cost charged to the Member when he moves. The actual cost of moving such equipment varies from vendor to vendor with the average cost of about $350 to move from one office to another.

Mr. FAZIO. And taxing the ability of the Architect.

Mr. BOYD ALEXANDER. We have started talking with the Clerk's Office Equipment Service, on identifying how big will the problem really be, and how much help we can expect from vendors and so on. We are at the very early stages of trying to plan to avoid serious bottlenecks.

The best thing for Members to do would be where possible not to move; if they can, to stay where they are. But given that is seldom likely, then how do we handle it? We are working with the Clerk to do that.

Mr. COLLEY. Mr. Chairman, I might say we have had preliminary discussions with the Architect's staff. They are involved because they really decide when the move takes place after the new Members have gotten their offices and the older Members have already moved—maybe I shouldn't say older—the senior Members have moved.

I will ask permission to correct the record.

There are several people involved. It is not just the telephones. It is the equipment that Boyd has addressed himself to. It is also other equipment that Office Equipment Service is concerned about, it is Property Supply Service, so it is a massive undertaking to relocate 60, 70 or 80 offices in a short period of time.

We have not ignored trying to get ready for it, anticipating as best we can what is going to happen.

There is one other problem associated with this, too. For example, in the Property Supply which is concerned with putting the new Members in their office, we are short-staffed, because of the famous Gramm-Rudman-Hollings bit of legislation. We have accumulated more than 20 vacancies in that Department in order to meet the demands of that legislation.

So come December it is going to be difficult to handle all those moves as efficiently as I think we have handled them in the past.

Mr. FAZIO. Perhaps the Gramm-Rudman legislation and these additional post-deregulation costs will result in fewer moves by Members. I don't know if there is any evidence yet.

Mr. COLLEY. My recollection last time is Members did not move—the Committee on House Administration indicated that they would have to pay the cost of that move out of their allowance for the telephone system and some members chose not to move.

Of course, it was at that point we also started using the Merlin telephones which saved some funds.

CURRENT COMMUNICATIONS STAFFING

Mr. FAZIO. One of the things we are interested in is our internal staffing capability. Are there technical and repair personnel on board? What kinds of people are available to help manage the communications system?

Ms. ZELENIAK. In terms of the Clerk's Office, we do not have technical or repair personnel to actually fix telephone equipment. I don't believe the Committee on House Administration does either.

Boyd, what about your staff?

Mr. BOYD ALEXANDER. We do not have people who are repair personnel for telephones or telephone systems. We do have people who handle repairs of the data components to the communication system.

We also have some maintenance contracts. We have a very small staff for repairs and maintenance.

Mr. FAZIO. How many people do you have?

Mr. BOYD ALEXANDER. In the communications area, in total we have about 15 people.

Mr. FAZIO. Fifteen?

Mr. BOYD ALEXANDER. Fifteen in the whole H.I.S. communications groups.

Mr. FAZIO. Susan, do we have anybody that would fall into this category?

Ms. ZELENIAK. I have two auditing and billing clerks and that is all.

FUTURE STAFFING REQUIREMENTS

Mr. FAZIO. In the future, you might be the telephone company. What kind of staffing will be anticipated? This obviously has a fiscal impact this committee will be interested in, but maybe over the long haul they are going to save money.

Ms. ZELENIAK. That is a key issue that has not been resolved yet in terms of what we are going to do versus what the contractor will be responsible for.

Mr. FAZIO. You don't know at this point?

Ms. ZELENIAK. We haven't yet decided which things we will take over versus which things the contractor will do. A lot of that will be dependent on staff.

Mr. FAZIO. How can decisions be made on contracts as both the House and the Senate have without knowing some of that information?

Ms. ZELENIAK. The Committee on House Administration sets telecommunications policy. We are guided in what we are doing and

not doing right now by the committee. We expect that there will be some discussions before we agree to the various options in the contract about who is going to do what.

Mr. FAZIO. The contracts all have remaining options to be worked out.

Ms. ZELENIAK. Yes.

Mr. FAZIO. One of them relates to staffing.

Ms. ZELENIAK. Yes. Questions relating to how many on-site people from the contractor we would use, for example, to maintain the system and to repair it. Are we going to use contractor personnel to process orders or is the House going to process orders. Is the contractor going to take repair calls or is the House going to take repair calls?

Mr. FAZIO. We have some questions for the record relating to staffing the new systems and overall costs.

[The questions and responses follow:]

Question. Who will operate and maintain the new system and all the telephones, etc.?

Response. At this time, these issues have not been fully examined. It is expected that AT&T will maintain the system under terms of a maintenance contract provided for in the RFP. Depending on staffing, expertise and costs, operation of the system could be done by the House, AT&T or a combination.

Question. Will there be contractor personnel on site in the Capitol at all times?

Response. The contract provides for the option of onsight contractor personnel at additional cost ($78,000.00 per technician). Whether this option will be exercised and for what hours of the day has yet to be determined.

Question. Who will manage the activities of the contractor? Who will do some of the jobs not being performed by the telephone company, such as coordinating changes, ordering equipment, apportioning toll costs, etc.?

Response. Once again, the division of responsibility will be dependent upon direction by the Committee on House Administration which maintains the authority to establish telecommunications policy. I would recommend that the daily coordinating of changes, ordering new equipment and verifying of billing be completed by one central staff. This arrangement would result in providing users a central source for communications matters and provides central control to assure timely installations and accurate billing. The apportioning of toll costs will become the responsibility of the House. The switch can provide call detail on a magnetic tape but processing to a paper bill must then be performed. It may be possible to have HIS prepare the bills for distribution and payment by the telecommunications staff. The procedure for reporting repair calls must also be established as the local telephone company now receives and coordinates all repair calls including those for equipment and long distance services.

Question. Please provide organizational, staffing and cost information for any new personnel requirements.

Response. As a result of the replacement of the house telephone system, more control and administrative functions will be passed to the House. Depending upon the options selected for administering the new system, additional staff will be required in order to provide efficient and economic telecommunications management. Typical jobs for a centralized staff are as follows:

Telecommunications Director: The responsibilities of this position include overall management and control of the telephone system and network functions. The director would plan, budget, recommend operating procedures, make procurement recommendations and act as a liason to the Committee on House Administration for the establishment of telecommunications policy.

Assistant Director for Operations: This manager would supervise a staff that will operate and maintain the telephone system in accordance with established standards of performance. Reporting to this supervisor would be four to six persons responsible for processing requests for changes and additional equipment, system programmable moves and changes, inventory, directory updates, billing verification, user assistance and a repair control center.

Assistant Director for Planning: The chief responsibility of this manager include the planning and configuration of the telephone system to assure effective utilization of the capabilities and technology available. Reporting to this supervisor would

be a Network Analyst responsible for analyzing traffic and cost performance of the local and long distance networks. The network Analyst would make appropriate recommendations for the automated routing system, private lines and local trunking.

In order to meet these staffing needs, 5 to 7 additional persons will be needed at an additional cost of $210,000 to $270,000 annually. The total staff would then be 9 to 11 persons at a total annual cost of $326,000 to $386,000. An organizational chart is attached including the current 14 operators at a cost of $288,000.

Question. For the Committees review, would you provide the analyses for all the cost associated with the procurements and installation of the new telephone switching system, telephone sets and all associated cabling and construction?

Response. The following are the anticipated costs associated with the procurement and installation of the new telephone system.

Switching equipment and software	$6,255,000
Telephone instruments	3,410,000
Installation of switch, cable and stations	3,100,000
Cable	462,000
WATS retermination	41,000
Trunk installation	121,000
Site preparation	[1] 4,000,000
	[2] 17,389,000

[1] Site preparation costs including room preparation and conduit were estimated by the Architect of the Capitol based on the vendor's initial requirements established during the proposal and evaluation phase of the procurement. This estimate is subject to change depending on the final requirements and on the space selected to house the equipment.

[2] Depending on the options selected, this amount could be increased by up to one million dollars.

AT&T PROPOSAL

Mr. FAZIO. Mr. Rose, I will be happy to yield.

Mr. ROSE. Mr. Thomas, please correct me if I leave anything out or misstate. I don't want it to appear that nothing has happened since our subcommittee, and subsequently the full committee selected the AT&T Information Systems proposal.

Mr. Thomas and I have had several meetings with the Clerk's staffs and with representatives of AT&T. Basically I believe you have produced a document which when these other little matters are decided, like the ones you just mentioned, will be our final contract with AT&T; is that correct?

Ms. ZELENIAK. Yes.

Mr. ROSE. We are almost there except for a few of the decisions that have to be made.

Ms. ZELENIAK. Yes. Regarding the options in the contract, we have had AT&T agree to give us at least one year to make those decisions even after we have signed a contract. We may decide to go back and exercise an option for more on-site personnel that we didn't agree to in the beginning, depending on how our own staffing requirements develop.

Mr. FAZIO. What are the trade offs? Is it simply a matter of money? Aren't we looking for capability also?

Ms. ZELENIAK. It is a matter of cost, expertise, and management control. I think that as we talked about with the inventory, it is wiser probably for the House to maintain its own inventory and know what we are paying for rather than to depend that an outside contractor to perform an inventory and tell us what we owe.

That may be the most management-wise policy on some of these decisions. It also may be that, as in many other services that the House provides for Members we find that we prefer having our

own staff support Members, in their requests for changes and additions rather than using the contractor.

It is a matter of choice and economics and expertise.

PERSONNEL AVAILABILITY

Mr. FAZIO. Do you have any doubt that you would be able to, find available expertise to hire to do the work with the telephone company for the benefit of the Members?

Ms. ZELENIAK. We can find the people.

Mr. FAZIO. They are available in the market place?

Ms. ZELENIAK. People are available. We have to look for the right ones and we have to look for people who have communications experience. I don't think we can just go out and hire clerical people. As Ray indicated, You have to pay them the right salary.

Communications is an expanding market. There are people moving all the time. This is a good place to work, so we hope we can attract qualified people if we are willing to offer appropriate compensation.

Mr. COLLEY. We will also need the appropriate financing.

I saw Mr. McGuire fidgeting and I wanted to be sure we brought up money.

HIS REQUIREMENTS AND THE PROPOSED TELEPHONE CONTRACT

Mr. FAZIO. It is a question of money either way, but also it is a question of what you get for it.

Boyd, you also are in the process. You procure equipment on a regular basis. What is your relationship with AT&T under this contract we have agreed to? How does it impact what you do and the future?

Mr. BOYD ALEXANDER. In the current contract for the voice grade phones, we rely on dealing primarily with the Clerk. We do have other communications capabilities. We are just now looking at what the impact might be with AT&T. I don't see that as impacting our staff a great deal as far as numbers of staff.

Maybe we might need some different expertise. We have other systems that we want to make sure that can interface with that network.

The House cable system, for example, is one that we want to be able to tie in. The other systems where we have communications are primarily for long distance for Member offices. We call them PDNS, Public Data Networks or Packet Data Networks. It is a better grade of communications between Washington and district offices for computer data traffic only.

Mr. FAZIO. Does it relate to telecopiers?

Mr. BOYD ALEXANDER. No. If you are referring to facsimile, we are exploring that. We have not tested facsimile yet.

Mr. FAZIO. I have seen some disastrous telecopy compatibility. It is almost worthless.

Mr. BOYD ALEXANDER. There is a group of facsimile equipment, group four, that will work on the PDNs. That equipment is not here yet, but it may soon be and your quality will improve.

We have two contracts, with Tymnet and with Uninet for PDNs. That gives us fairly good coverage.

Their lines come into our communications systems.

Mr. FAZIO. You are talking about a printer at the other end printing out data communications?

Mr. BOYD ALEXANDER. Or a personal computer terminal displaying something on a screen.

Mr. FAZIO. With common access?

Mr. BOYD ALEXANDER. That is correct.

Mr. FAZIO. How many have that capability today? What numbers are we talking about?

Mr. BOYD ALEXANDER. We don't have a good breakdown or good idea of what is in the district offices, but there are in total about 3500 devices of some kind, personal computers, intelligent terminals, terminals that can access H.I.S. and about 6,000 House employees who have been given access to the system.

So there is about a two-to-one ratio, not quite, but roughly two people to one device. It is a large group and in any one day coming through our telecommunications to our data bases at H.I.S. we have approximately 4,000 sessions of people seeking information. It is a fairly active communications area.

Mr. FAZIO. So you anticipate keeping these independent networks and using them for the future. Is there no requirement or anticipation that you would be using an AT&T network?

Mr. BOYD ALEXANDER. I think the possibility of using AT&T looks good. We are going to have to look at cost.

Mr. FAZIO. That was not part of the contract?

Mr. BOYD ALEXANDER. I am not sure what is part of the contract at this point in time.

Mr. ROSE. Will the gentleman yield?

I believe Mr. Fazio is asking did we work out any special arrangements in working with the Clerk for you for data transmission with district offices?

Mr. BOYD ALEXANDER. No. We have no special arrangements. PDNs are completely separate. Currently we plan on continuing to use PDNs. District offices also currently use FTS and in some cases WATS, but FTS is probably the larger system right now.

Mr. FAZIO. Mr. Rose, do you have any questions?

INTEGRATION OF COMMUNICATIONS SYSTEMS

Mr. ROSE. If I can just stop here for a minute and try to provide a little perspective to where I believe we are and where I hope we are going.

It is my understanding from talking with you and from your staff and certainly from my long experience with Mr. Thomas, that all of us hope that we can save money in Congress through integration of our telecommunications system.

By integration, I mean more than just having the system compatible and consolidated. One of the things that I believe you said in your opening statement was that you will explore with each of these legislative entities that doesn't come under the jurisdiction of the House Administration Committee, the possibility of us establishing an integrated communications network.

I chose those words specifically. Many years ago it became apparent that Congress would have a cable system in the House and in

the Senate and in the Library of Congress, which required some decisions about communicating on that wire.

Mr. Alexander and I held a hearing that will go down in history as the only hearing on broad band digital networks.

We had IBM, General Motors, Control Data and everybody and his brother come in and testify. We made a judgment on the technology available then, Boyd, that we would have a network that carried both digital and video pictures.

Mr. BOYD ALEXANDER. That is right.

Mr. ROSE. Digital information and the video at the same time. The technology really has not moved in that direction, or can we make that judgment?

In other words, what we should make decisions about, and this relates to the extent of integration of our network, is whether the future Congress will attempt to have data transmission over our cable which is something the other offices such as GAO don't have, and whether we are going to go to the twisted pair or the telephone system for voice and data needs.

The situation that we ran into with the cable was that to communicate with the computer over the cable, it that you plug the cable into your T.V. set in your office now and you see the House floor proceedings or whatever else is included on that system.

I have a list from the Architect of the Capitol of the current channel designations. There are several here for HIS, for data purposes.

All of these are different channels that are now available on the cable. But in order to talk to the computer over the cable a box called the buss interface unit is necessary and Mr. Thomas and I and Mr. Alexander realize that those are very expensive.

We only have about 50 of those around here now; is that right?

Mr. BOYD ALEXANDER. A few more than that. We have 85 right now.

Mr. ROSE. But we paid as much as two grand a piece for those things; haven't we?

Mr. BOYD ALEXANDER. Originally when we were holding those hearings they were that price. Now they are about $1300 for a unit with four ports.

Mr. ROSE. So, the new digital telephone system is the much cheaper way for us to go with today?

Mr. BOYD ALEXANDER. I think it is. For example, each one of those boxes can hold four devices now. They used to only hold one. So you divide that $1300 by four and you are getting to the price range of a modem which is what a lot of people use now. But I think you are absolutely right that we need to think about the integration and the strength of that cable as the basis of a sort of a spine network.

In other words, a network that would go around the local Hill community to allow different telephone systems to hook into it.

Mr. FAZIO. You said spine?

Mr. ROSE. S-p-i-n-e.

Mr. BOYD ALEXANDER. Spine. A backbone network. That might be used to handle data traffic at higher speed.

There is a need for handling data traffic as we originally envisioned. The digital PBX was not available then and perhaps it could handle much of the load.

Mr. ROSE. If there was a fault in the telephone procurement—and I don't think—the original RFPs prepared by staff and consultants of both the House and Senate were shortsighted of their description of future data requirements and opportunities.

I don't mean to be critical of anyone here. We didn't have a real conversation about this. The Senate started the ball rolling. We piggy-backed on the Senate.

As it turned out, we finished before the Senate has finished, which is typical.

INTERRELATE WITH AT&T

Mr. FAZIO. Is this an area you think does need some further delineation?

So Mr. Boyd Alexander can answer the question I asked him earlier about how it interrelates with AT&T.

Mr. ROSE. His need to interrelate to AT&T is in two areas, as to how he gets the signals from his computer up on Capitol Hill and how he gets the signals in his computer system out across the country. To get out across the country the best way will probably always be the specialized communication services.

To get on Capitol Hill the question was in the past does he come up to Capitol Hill over the House cable system or will he use the telephone system. Right now he is using both.

Mr. BOYD ALEXANDER. That is correct.

Mr. ROSE. He will probably continue to use both in the future.

Mr. BOYD ALEXANDER. That is right.

Mr. ROSE. The architecture may look differently in the future, but the two methods will probably continue.

Mr. FAZIO. Boyd, as you interrelate with other agencies on the Hill, how do you envision increased compatibility with, say, the Library of Congress or GPO? When Mr. Rose mentions Capitol Hill, we are trying to take a broader definition of that.

Mr. BOYD ALEXANDER. Well, the cable physically exists to do that. It does not go to GPO or GAO, but it links the Senate, the House and the Library of Congress. We, in fact, have put together a plan on how we might approach these requirements.

Each case currently is a special requirement. For example, GAO; we provide services to GAO from our computer service and they come in over a dedicated wire, a C&P telephone line.

When their regional offices will start communicating with us, we think we will be looking at the public data networks for that.

Mr. FAZIO. GAO's regional offices?

Mr. BOYD ALEXANDER. Yes. We are talking with them now about doing their financial management system on our main frame. We already do some other work for them and the Library of Congress, and the others are on the telephone system right now. We don't see that changing in the near future.

DISCUSSION ON CABLE NETWORK

Mr. FAZIO. I am interested in knowing a little bit more about the cable system. What are the capabilities of it, present and future so we can know how we can better utilize it and where it might fit into this discussion?

Mr. BOYD ALEXANDER. Well, the cable network was put through the whole campus here for the purpose of broadcasting television. When they did that we asked a second cable be pulled for data.

The Architect of the Capitol is responsible for management of channel allocation. HIS has been allocated essentially two channels on a frequency range of between 40 and 54 megahertz.

We are currently using about 1.2 megahertz of that allocation. Six megahertz is equal to a TV channel. So we have two channels authorized to us.

We are currently using that system to provide access from some Member offices to the data bases in our system. The advantage is faster traffic than currently available to most users on the phone system—it can go at 9600 baud where conventional traffic would be 300 or 1200 baud.

So it is extremely fast. It is accurate. Characters are not dropped in the transmission and those characteristics make it very useful.

It also has the capability of having intelligence built into the interface unit so that the user can communicate very easily.

Users are given menus to use the system. We are exploring the idea of file transfer, moving large amounts of text like the Congressional Record or documents that the Clerk publishes across that cable so that the time consumed on the phone would not be that costly.

Mr. FAZIO. These are being explored.

Mr. BOYD ALEXANDER. They are being tested as a matter of fact.

Mr. FAZIO. So we are not that far away from that kind of communication.

Mr. BOYD ALEXANDER. Moving the text at high speeds, file transfers are the things we are testing. All the rest is operational.

COMMONALITY OF REQUIREMENTS

Mr. FAZIO. I am glad that is occurring. I just want to get to a central point and this will come up throughout these hearings. Increasingly, there seems to be a commonality of telecommunication circuit requirements between Members' offices, the district offices, HIS, GPO, the Library of Congress, and the GAO. Many Members are located in the same Federal office buildings around the country where some of the regional offices are located, GAO, for example.

There are some cities where the Library of Congress or GPO have the need to transmit data. It seems to me, and I would be interested in your opinions, whether you see potential for cost savings in sharing the potential communication lines?

Is there something here not only in terms of saving dollars but making available data at relatively lower cost, and perhaps some additional capability.

I don't know that anyone has ever taken the opportunity to integrate these opportunities. I don't think there has been a comprehensive study.

Mr. BOYD ALEXANDER. I think you are absolutely right, Mr. Chairman. Nobody has really taken a look at that. We have done a reasonable study on what House data communication requirements are but the relationship to other offices would be something I think should probably be looked into.

We are looking at the data transfer between district offices and Washington, and also the regional offices of GAO, because GAO is a potential customers of ours. We haven't gone beyond that, but I think it would be reasonable to take a look to see if such savings could be achieved.

Mr. FAZIO. Susan, has there been research into data transmission on the Hill, to regional offices? What other opportunities or comprehensive evaluation have been made of some of these potentials?

Ms. ZELENIAK. I don't think within the Clerk's Office we have really examined that in any detail whatsoever. I know the Committee on House Administration has looked into the idea of a communication system that might handle all the agencies. I know they have looked into how to better support the district offices in terms of their communication needs and whether that should be done by the individual offices or by the committee providing them support. But as far as the Clerk's Office, we really haven't looked into it nor have we been part of any plan to do that.

Mr. FAZIO. I have several questions regarding data communications that I would like answered for the record.

[The questions and responses follow:]

Question What telecommuncations (data communications) capabilities does H.I.S. have or acquire?

Response. H.I.S. presently has data communcations networks which support approximately 3,500 workstations (and over 6,000 users), including unintelligent terminals, intelligent terminals, office systems, and personal computers as follows:

(1) a dial-in network with 247 ports for accessing the H.I.S. mainframe services through ASCII/asynchronous connections from Capitol Hill offices, and from district offices through FTS lines;

(2) 3270 hard-wired terminals (local and remote) with 400 connections for users of full-screen applications on the H.I.S. mainframe (the Clerk, Congressional Budget Office, General Accounting Office, Office of Legislative Counsel, Office of Law Revision Counsel, and H.I.S.);

(3) a broadband local area network (LAN) with 85 Bus Interface Units (BIU's) for as many as 350 users. It provides access to the H.I.S. mainframe services, dial-in and dial-out access to the telephone system, and has the potential to handle Public Data Networks (PDN's) and office-to-office communications;

(4) PDN access to the Member Information Network (MIN) services over two shared network lines now being used by 45 to 50 district offices;

(5) Fiber Optic cable (which runs from 2401 Rayburn to the Government Printing Office).

H.I.S. employs Network Operations technicians, Communications System Software Programmers, Network Engineers, and Communications Network and Operations Management personnel. These personnel resources operate and manage a modern Network Operations Center that currently services and monitors for 6,000 users in Member and Committee offices the dial-in telephone network, the 3270 terminal network, the cable LAN, and the PDN's. In addition, H.I.S. offers the PDN services to district offices who wish to access MIN services. H.I.S. is testing a district office-to-Capitol Hill office capability that will use the H.I.S. cable system to transfer data from the PDN's.

Question How many channels are there in the Congressional Cable System? How many are assigned and utilized and what is the extent of utilization.

Response. (1)How many channels are there?

There are 37 (6-MHz) channels.

(2) How many are assigned?

There are two channels (14-MHz) assigned to H.I.S. between 40 to 50 MHz. It is anticipated, however, the channels will have to be reassigned to operate within newly-established standards.

(3) How many are being utilized?

One channel is currently being used by H.I.S.

(4) To what extent is the channel utilized?

The channel is primarily utilized for Member Information Network (MIN) sevices. In an average month, LAN traffic represented 4,750 MIN sessions, or approximately 10% of the total MIN traffic. It is available for data transmission 24 hours per day for general services. Currently it handles terminal-to-H.I.S. mainframe and remote database traffic. H.I.S. mainframe services are available 7 a.m. to midnight Monday through Friday and 9 a.m. to 8 p.m. on Saturday and Sunday.

Plans are underway to use other channels for specialized transmission (file transfers) of *Congresional Record* data and other legislative documents between the Rayburn and House Annex 2, and possibly for 3270 traffic in the future.

Question How much telecommunications or data exchange is there between H.I.S. and the other Legislative agencies such as Government Printing Office, the Library of Congress, and General Accounting Office?

Response. (1) Committees require support for communication of publications between the ATEX House publications system and Government Printing Office. In an average month, Committees produce 125 hearings (approximately 34,280 pages or 102.6 megabytes), 17 *Congressional Records* (52.1 megabytes), and 427 Bills and Resolutions (29.3 megabytes). In addition, the following information is produced: 67 megabytes per month for the Federal Register, and 50 megabytes per month for the Code of Federal Regulations, representing 4 titles or approximately 11 volumes. The total publications support for the 22 Standing Committees is estimated to be 300 megabytes per month.

(2) The Clerk's Office of Finance presently sends a monthly tape containing Electronic Fund Transfer (EFT) information to the Library of Congress, which forwards it electronically to the Federal Reserve in Richmond. The tape contains an estimated 9,000 checks (payroll information), or 1.8 megabytes of data (assuming 200 characters per check).

(3) The Congressional Budget Office, General Accounting Office, Congressional Research Service, and others also communicate with the H.I.S. mainframe: please refer to the user requirements matrix in the attached H.I.S. Communications Plan dated April 1986.

Question. What is your estimate of the future trend?

Response. (1) There is a trend for added support to Committee offices for production of bills and reports through an improved link to ATEX and Government Printing Office at 2400 bps (or 9600 bps using the LAN). This connection would be less costly than at present, due to faster turnaround time. Within the next 18 months, usage is projected to increase many more House offices use this capability.

(2) In July 1986, the General Accounting Office will start using the H.I.S. mainframe for its Financial Management System. Direct communications access will be provided to the General Accounting Office Headquarters and 28 regional locations throughout the country.

(3) Congressional legislative data information exchange (LEGIS) data may be communicated directly from the Senate and Library of Congress to the H.I.S. mainframe, then back to the Library of Congress. This traffic is estimated to average between 0.2 and 20 megabytes per month, depending on Legislative activity.

(4) The tape containing Electronic Fund Transfer information presently sent manually from House Annex 2 to the Library of Congress may be telecommunicated directly. It would average 1.8 megabytes per month.

(5) Transfer of Treasury tapes containing check and balance sheet information from the H.I.S. mainframe to the Treasury Department could also be telecommunicated. It is estimated to contain 57,000 payroll records and 81,000 voucher records per month. At 65 characters per record, the total amount of data to be transmitted would be 8.97 megabytes per month.

(6) The telephone billing information for Member offices presently given to the Clerk of the House on tape could be telecommmunicated. Four tapes would be transmitted monthly, containing approximately 80 megabytes per month (130,000 record per tape, using 185 characters per record).

(7) If the House chose to make some or all of the House database information (e.g., LEGIS) availalbe to outside entities, a telecommunications link with the Depository Library system could be used.

Question. How much telecommunications or data exchange is there between H.I.S. and the Member's offices in the Capitol and their districts?

Response. There is a very high volume of telecommunications or data exchange.

(1) Database on-line retrieval services (MIN and Legal Retrieval), representing 55, 584 monthly telecommunications sessions, account for aproximately 255.69 megabytes per month.

(2) Access from district offices to in-office systems on Capitol Hill and to H.I.S. mainframe services over FTS and PDN lines is estimated to account or up to 500 megabytes per month.

Question. Please provide the amount of data telecommunicated in a normal busy month (e.g., bytes of data), the data communication rate (e.g., bits per second), the media utilized (e.g., local cable or commercial means), and the destination (e.g., city or agency).

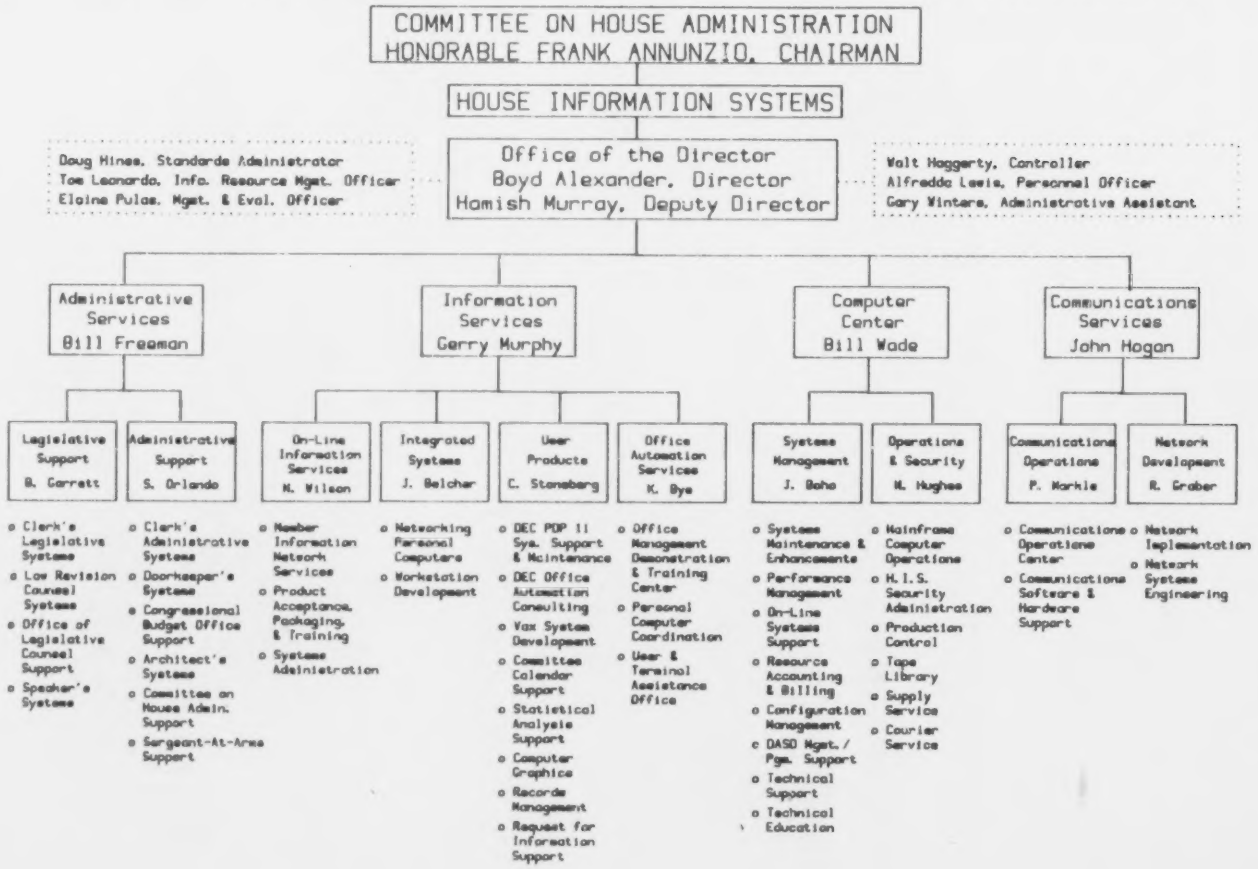
Response:

Source/destination (city, agency)	Data communicated (megabytes/ month)	Speed (bps)	Media (LAN, etc)
Capitol Hill office/H.I.S. mainframe	300.0	300–1,200	Dial.
Capitol Hill office/in-office system	17.0	300–1,200	Dial.
Capitol Hill office/ATEX system	2.0	2,400	Dial.
Propac (D.C.)/H.I.S. mainframe	79.0	4,800	Dial.
GAO (DC)/H.I.S. mainframe	3.0	9,600	3,270/dedicated.
House support offices/H.I.S. mainframe	700.0	9,600	3,270/dedicated.
Capitol Hill office/H.I.S. mainframe dial-out local	30.0	9,600	LAN.
Capitol Hill office/in office system	10.0	9,600	LAN.
District office/H.I.S. mainframe and in-office system	485.0	300–1,200	FTS.
District office/H.I.S. mainframe	15.0	300–1,200	PDN.

Question. Please provide organization, staffing and associated cost information for H.I.S.

Response. H.I.S. currently has a staff of 198 professional and administrative personnel. Fifteen personnel are assigned to Communication Services.

House Information Systems - Organization/Function Chart



	H.I.S. budget 1986 pre-Gramm-Rudman	H.I.S. 1986 budget
Obligations:		
Salary and staff support	**$8,495.9**	**$7,986.0**
Salaries	8,314.7	7,850.0
Staff support	181.3	136.0
Training	105.0	80.0
Travel	60.0	40.0
Technical Publications	16.3	16.0
Computer support	**9,044.0**	**7,804.0**
Rental and maintenance	6,988.3	6,325.4
Equipment	6,126.4	5,572.0
Software	861.9	752.8
Purchase	918.0	939.8
Equipment	414.8	307.5
Software	135.0	207.9
Supplies	350.2	397.4
Telephone	18.0	18.0
External Services	1,137.7	538.8
Total obligations	17,540.0	15,790.0
House resolution	**8,500.0**	**7,379.0**
Estimated Reimbursements	**9,040.0**	**8,411.0**
Reimbursements:		
Office of the Clerk	5,155.0	4,600.0
CBO	3,300.0	3,300.0
GAO	220.0	200.0
Perspective payment	250.0	210.0
OTA	36.0	30.0
Law Revision Counsel	26.0	25.0
House Restaurant	24.0	20.0
Legislative Counsel	3.0	3.0
Doorkeeper	2.0	2.0
Postmaster	3.0	2.0
CRS	2.0	2.0
House Members	19.0	16.0
Estimated reimbursements	9,040.0	8,411.0

Question. What are the total costs associated with telecommunications for H.I.S.? Provide a detailed break out of these costs.

Responses. The total costs associated with telecommunications for H.I.S. currently is $1,431,500.

H.I.S. TELECOMMUNICATIONS COSTS

	1985 actual	1986 proposed	1986, Gramm-Rudman
Communications operations	**$1,160.7**	**$1,076.6**	**$984.4**
Salaries	308.6	418.7	391.0
Computer support	852.1	657.9	593.4
Rental and maintenance	666.6	512.5	514.1
Equipment	597.3	430.8	432.3
Software	69.3	81.7	81.8
Purchase	57.9	27.1	26.6
Equipment	27.6	22.4	22.4
Software	25.0	1.1	0.6
Supplies	5.3	3.6	3.6

H.I.S. TELECOMMUNICATIONS COSTS—Continued

	1985 actual	1986 proposed	1986, Gramm-Rudman
External services	30.1	27.1	7.3
PDN nodes	97.5	91.2	45.4
Cable network	**753.8**	**771.5**	**377.2**
Salaries	202.7	275.0	186.1
Computer support	551.1	496.5	191.1
Rental and maintenance	199.8	239.4	139.1
Equipment	81.6	53.8	37.9
Software	118.2	185.6	101.2
Purchase	349.0	227.1	51.0
Equipment	243.3	176.3	38.0
Software	103.2	40.3	3.5
Supplies	2.5	10.5	9.5
External services	2.3	30.0	1.0
Staff training	**14.2**	**20.4**	**15.4**
PDN usage	**134.6**	**54.5**	**54.5**
Total	2,063.3	1,923.0	1,431.5

GENERAL DISCUSSION

Mr. FAZIO. Mr. Rose, I was going to ask you if you wanted to comment. You might be our best witness.

Mr. ROSE. Bill Thomas and I, correct me if I am wrong, Bill, feel very strongly about what we hope we are going to do with the House telephone system, that is to put together the central building block for what can or might become a truly integrated communication system for the future.

That is one of the reasons we made the kind of selection that we did. We want to set the stage and be the pilot and show these other agencies that are under your jurisdiction that they can come along, they could even copy what we think we are going to do a good job of handling in the House of Representatives.

I had hoped that the Senate was going to move more in the direction that we had moved in the House. From the preliminary discussions I have had, I am not sure what the Senate has actually decided. There seems to be some controversy among the staff as to what they did decide.

So time is just going to have to sort that one out. I don't believe we should delay any further the progress that I would like to see us make in the House. Mr. Thomas.

Mr. THOMAS. Will the gentleman yield on that?

One of the reasons we decided to wait as long as we did and now move when we moved is the physical equipment has reached a point that there will not be significant restructuring. It is really software that drives the system that will be modified in the future to provide for compatibility with other systems.

So at this level of technology, if GPO or GAO or somebody else makes a decision on some different equipment as long as it is of a certain technological level which is now what we have available in

the market place, it is the software and the ability to interconnect them that will make the difference.

That is where we are in the 19th Century in terms of our facilities. Once we make that adjustment to me the linkage will not be that difficult in terms of any mechanical procedure. It will be software and creativity of matching up the various systems that we have.

CONCERNS RELATING TO HARDWARE

Mr. FAZIO. I would just like to comment. I don't disagree because I am not completed familiar with this.

But I want to make sure we are not talking hardware engineering capability in addition to simply software capability. I would hate to think that we eventually discover that our inability to communicate or to maximize our potential is going to be impeded by equipment procurement decisions or hardware.

Mr. ROSE. That is a good concern.

Mr. FAZIO. I don't know how we find that out because the people coming to talk to us today probably don't have that information and there may be some biases among those who do. But I would be happy to yield.

Mr. ROSE. May I inteject and say that I am confident that we have selected good technology for the House in the decision that Mr. Thomas and our subcommittee made. There are other vendors out there with other equipment available.

Some of it is at the end of its life cycle and will probably not be replaced for several years to come, but the AT&T system 85s we felt were fine technology and will be around for a long time to come and as Mr. Thomas said, the changes will be in the area of software. I would like to settle one little thing that Boyd and I have been talking about.

I don't think we should try to put much hope that our CATV system is going to be a major data or information network for us in the decades to come. It has limited use now.

It will always be used for television and perhaps some data uses, but clearly the technology in that area right now has moved on to optical fiber cable. Some builders today in constructing new office buildings are installing optical fiber cables as a hedge against the future without any particular knowledge as to how they are going to use the thing.

We don't have that luxury around here.

Mr. FAZIO. So the CATV system will play a role and will be fully utilized at some point, but it is not the new future means of data communication.

Mr. BOYD ALEXANDER. That is right.

Mr ROSE. As somebody said, since Gramm-Rudman the future ain't what it used to be, Mr. Chairman.

Mr. FAZIO. It is different.

Mr. Lewis.

Mr. LEWIS. Mr. Chairman, thank you.

I was going to tap in to Charlie Rose once again. It has been a while since I have been plugged into his network.

Mr. ROSE. You left us and went on to higher things.

COORDINATION OF EFFORTS

Mr. LEWIS. Chairman Fazio and I have found one of the challenges around here is to get various agencies over whom we have some relationship or with whom to coordinate with one another. The printing operation is just one illustration. Everybody wants to have their own print plant for many, many reasons, not the most important of which may be personnel and somebody is a supervisor, et cetera, but rather questions like independence and control and security, et cetera.

Mr. Thomas quickly answered a question that was formulating in my mind. It sounds as though you have gone about attempting to select not only cost effective starting points, but starting points that provide the kind of flexibility that will allow us to integrate future changes in your decision.

Yet I can see a lot of individual agencies as well as the Senate looking for some sort of independence in their operation in the way they handle communications because of concerns about control and specifically, especially security.

Can you tell us a little bit about that in terms of your thinking?

Mr. ROSE. I have got a little statement here that pretty well covers your concern. I haven't put it in the record. I would like my statement, Mr. Chairman, if you don't mind, to be made part of the record.

Mr. FAZIO. Absolutely.

CONGRESSIONAL TELEPHONE SYSTEM

Mr. ROSE. For cost and security reasons, the Congress should ultimately own the new telephone system serving its need. It should be operated under the direct control of Congress without regulatory intervention by the D.C. Public Service Commission. That is a factor we could talk about at great length.

Under the system—I will add to that the FCC or any agency of the Executive Branch, save your subcommittee, which pays the bill. We believe that there are some security reasons. There are separation of power considerations as well as freedom from the D.C. Public Service Commission that should move us toward owning and locating our own switching equipment here on the Hill.

I joke with them all the time from the Architect's point of view. The Architect would love it if parking were handled by some downtown operation, or that McDonalds ran the restaurant systems around here. They like things being in somebody else's bailiwick.

But I believe the time has come—and that was part of our decision—the time has come for us to bring the switches on to Capitol Hill. From what I have learned, there is some question as to how the Senate has answered that question. Some of the Senate people I spoke with have said they bought a switch and they are going to put it on Capitol Hill.

Some other people I spoke with said no, we are going to lease it and maybe locate part of it on Capitol Hill. So they are a little fuzzy on how they have answered that.

Mr. FAZIO. Maybe when we conclude this hearing tomorrow we will have some information on the record on that.

Mr. LEWIS. Mr. Chairman, it sounds like we are back to the original problem, that is we feel the need for a system that we own and we control and hope that it is flexible enough that others will see fit to build upon, but we are doing that because we want security, we want assurances and so why wouldn't GAO want the same thing. Why wouldn't the Senate want the same thing?

Are we at the point in technology where you can have a centralized system and still give people the independence and security that they need and eliminate some of the duplicative costs that are involved?

It sounds like we made the decision we wanted to control it.

Mr. ROSE. I am not sure they have in the other body.

Mr. FAZIO. As we often say, "who is we"? We are coming with a different orientation.

Mr. LEWIS. "We" has got to appropriate it.

Mr. THOMAS. Mr. Chairman?

Mr. FAZIO. Mr. Thomas.

COMMUNICATION BETWEEN AGENCIES

Mr. THOMAS. On that point, I don't want to anticipate other witness' testimony, but on the Library of Congress statement, I think it is pertinent to note that it says, "The Library of Congress has a design contract with AT&T to help us plan, configure and prepare engineering drawings for an AT&T premise distribution wiring system. This system is being designed to be totally independent of any manufacturer's switching systems, including AT&T's. It will provide a Library-wide wire and optical fiber distribution network to support the variety of communicating devices which the Library now has, and those it is likely to acquire over the next thirty years.

The benefit of this multipurpose wiring system is that it eliminates the necessity of making one-of-a-kind installations whenever a user requires access to a new system.

They are anticipating the ability to communicate on a digital basis as are other areas, so that there will be the ability to intercommunicate even though the hardware is not the same.

Mr. ROSE. Will the gentleman yield?

Do you see how brash an agency talks when they don't have a good authorizing committee looking over their shoulder?

Mr. FAZIO. That is the purpose of these hearings and why they have to be timely in order to provide a common capability to communicate about individual plans.

We have asked all the agencies, some of which are not happy about it, to delay decisions and take a look at where we are all going.

Mr. THOMAS. Let me continue. My opening statement was as long as the structure is there. I think we have to also understand that various agencies have specialized needs. The Library of Congress in terms of intercommunication between buildings and the kind of data they might transmit, and what we want is coordination and integration.

We don't necessarily—I assume the Chairman's direction is to make sure we have that coordination and ability to integrate. It isn't to talk about a one-time buying plan so that everybody is in

step because I don't think you can ever achieve that given the growth needs and the interest that the various agencies have.

My concern is are we able to talk to each other. That is my concern.

Mr. FAZIO. Exactly.

Mr. THOMAS. That was how we started with the equipment that we looked at and we believe that we have the hub of a system which with software changes over the next decade plus will be able to integrate with all of the programs that others are coming up with and that they have their own time tables.

They have their own needs, but the primary purpose will be to communicate and integrate. As long as we are moving in that direction, I like to see a little bit of independence in terms of structuring a system that meets their particular needs and not one that overall looks like it is best for everybody because if you can talk to each other, who cares what kind of system they have? Cost might be another factor, but I think ultimately you will find if everyone is required to move at the same pace on a fully integrated basis, that is going to cost more.

Mr. FAZIO. If I could just comment. Mr. Rose mentioned earlier the question of separation of powers. That is important to all of us.

The Legislative Branch is a separate entity within the Federal structure, but we are also making sure that this legislative body, the Congress, the House and Senate hopefully together, have access to all the tools they need to make decisions.

We want the capability access information. Those are some of the concerns that the Appropriations Committee has and why we are interested in providing some sort of overview in our area of jurisdiction.

Mr. ROSE. Mr. Chairman, let me try something on you. Mr. Thomas see if this fits what you and I have been talking about. How about this?

Each large component of the Legislative Branch, House, Senate, GAO, GPO, and the Library of Congress, should be allowed freedom to acquire its own PBX system and the small components. The Architect, the CBO, OTA, the police, the joint committees, the caucuses, et cetera, should share a single PBX along with support services of the House.

This could reduce the Senate system to a point where it could be comfortably managed by a single, say, system 85, and the two 85s selected by the House easily support its requirements along with the other.

What we are after is compatibility and inter-connectivity, and that is what Mr. Thomas said very well.

Mr. FAZIO. That sounds like one option we might want to consider. Certainly it has been thought through to some degree.

Mrs. Boggs?

Mrs. BOGGS. Thank you, Mr. Chairman.

Mr. FAZIO. We mentioned a number of agencies that Mrs. Boggs is interested in. She is the most active member of our subcommittee and I know she will be interested in the way in which our decisions impact these agencies.

I am glad that you took the time to join us today.

Mrs. BOGGS. Thank you very much, Mr. Chairman.

I was sitting here thinking how technology has changed and expanded. I was on the original ad hoc Subcommittee on Computers with Mr. Rose in the 94th Congress. At that time we had passed the Budget Act and had set up the Congressional Budget Office to meet the expansion of our needs. I remember thinking it would be very sensible to be able to talk to OMB computers. However, we were reminded of the separation of powers by the Executive Branch.

I think it is very natural that we are thinking about security and our own capabilities and yet having to consider interfacing with the other departments and agencies.

I would be very interested in not only the testimony of those agencies that you referred to as my special interest, but also in the kind of personnel it is going to take to operate whatever systems we finally decide on.

Mr. FAZIO. Thank you, Mrs. Boggs.

Any time you have a question or thought you want to express, please seek recognition and we will be happy to hear from you.

There are a number of areas that I am going to ask Ed Lombard to work into the record in terms of questions of both parties at the table. I would like to talk for a second about the cost of site preparation and recabling.

SITE PREPARATION AND RECABLING

It does vary, doesn't it, from one system to another that we could have procured and will under any circumstances be a factor that we have got to consider in our budgets certainly in providing for the Architect.

Does anyone want to comment on that subject? Ben?

Mr. GUTHRIE. I think we have to clear it with the Architect as far as cost of the site preparation. It is under his jurisdiction.

Mr. FAZIO. We will be hearing from the Architect's Office later on.

Do you have anything that you want to make available to us at this time?

Ms. ZELENIAK. The Architect did work on the evaluation of the proposals. I know they have numbers and I know they have done drawings.

They could probably present those later today.

Mr. FAZIO. Are you in a position to evaluate those costs, or the required details? Has it been within your purview?

Ms. ZELENIAK. No.

HOUSE-SENATE SHARED TELEPHONE SERVICES

Mr. FAZIO. I know many Members are interested in knowing about future telecommunications. Are the House and the Senate going to be in a position to share a common telephone system even though we go in separate directions on procurement?

Are we still going to have the exclusive use of the 225 and 226 exchanges and the luxury of five digit dialing between the House and the Senate?

Are we going to have shared operator services and telecommunication circuits like WATS?

Ms. ZELENIAK. Let me address them each individually because they don't all have the same answer.

Mr. FAZIO. I am sorry to hear you say that.

Ms. ZELENIAK. It does not mean they can't be done, but they don't have the same answer.

To answer the first question, 225, and 226 numbers will still be used by the House. We will be maintaining those telephone numbers. It was one of our requirements in the cut over, that we be able to maintain those numbers and C&P has said, yes.

The only stipulation is that we have to reserve all 20,000 numbers. Even though we may not be using them all, we do have to pay a charge for all 20,000 numbers.

Mr. FAZIO. Why is that?

Ms. ZELENIAK. The technology of telephone numbers is such that you can assign a bank of numbers as direct inward dialing PBX station numbers or you can assign them as residential numbers, or you can assign them as centrex numbers. You cannot assign them all in the same group.

So that if we are to take those centrex numbers, we have to take them all or we don't take any.

Otherwise they could start assigning some of them as residential numbers. I don't think the House wants that to happen.

Mr. FAZIO. So there is a large reserve in case there is a decision to increase staff.

Ms. ZELENIAK. Yes. We do expect to grow to probably at least 15,000 of those numbers.

Mr. FAZIO. Out of how many?

Ms. ZELENIAK. Out of 20,000. Now, we have 12,200.

Mr. FAZIO. Why do you have those additional numbers?

Ms. ZELENIAK. That is the normal growth that has occurred, over the last 10 or 12 years, even with the slowdown.

Mr. FAZIO. I have noticed a leveling in the past four or five years.

Ms. ZELENIAK. The increase has come in the number of lines assigned for data not in the number for voice.

Mr. FAZIO. That 20 percent for data that Boyd was mentioning earlier is where it is coming from.

Ms. ZELENIAK. Exactly. In terms of being able to have five digit dialing with the Senate, one of our requirements in the RFP was that the vendor have a way of being able to do that. It will require tie lines between our system and the Senate. Those will have to be engineered and installed but we understand the capability is available to do that.

We may have to pay what is referred to as message units unless we install our own privately owned network between the House and Senate, which has not yet been explored. But it will be, I am sure.

Regarding Operators, Operator services are currently provided through a joint House-Senate office. Since the recent Senate decision to have C&P provide their service, the future of this Joint office has not yet been evaluated. Each system will have its own operator equipment. Whether this equipment can continue to be colocated is uncertain. These options must be investigated and evalu-

ated so that quality operator service can be provided in the most cost effective manner.

Mr. FAZIO. Those items that have to be explored with the Senate are answers that you can't provide, isn't that correct?

Ms. ZELENIAK. They have to be explored with the Senate and the Architect, as to who would install, maintain and design the network and who is going to pay for what parts. But the answer is that the capability is there to provide what we have today. It just has to be engineered and paid for.

Mr. FAZIO. These things are possible is what you are saying?

Ms. ZELENIAK. Yes.

Mr. FAZIO. Depending on the degree to which the two bodies to cooperate. They obviously are made more difficult because of the fact, at least at this point, each entity has chosen a different company. Is that a fair statement?

Ms. ZELENIAK. I think that is a fair statement.

CONSOLIDATED TELECOMMUNICATIONS CAPABILITY

Mr. FAZIO. I would like to get into some of the technical and organizational methods for consolidating and managing technical issues and in the technology field relating to size and scope.

I know Mr. Thomas and Mr. Rose probably have a better fix on this than I do. I appreciate their involvment. Apparently there are several options.

We could go with the large system, an AT&T #5 ESS or C&P DMS 100 with a single common operation and management organization; a centralized system # 5 ESS or DMS 100 with remote subsystems, the system 85's, distributed among the various agencies. In this case, management could be performed by a single management organization, or it could be divided between the central system for circuit control and the individual agencies for control of local services. We could have a series of interconnected systems, this is the 85's again, with either single or divided management, and finally, no central system but agencies making individual acquisitions and only a common systems engineering staff to ensure technical compatibility and inter-operation of individual agency systems, to minimize the duplication of telecommunication resources.

Neither the current authorizations for the operations in the legislative agencies or the rules of the House, however, give oversight authority or overall legislative communications to any one agency or committee.

Authorizations are generally at the agency level and we know the oversight functions are now dispersed among a variety of committees. In your opinion what would be the advantage and disadvantage of the overall choices in terms of our ability to communicate with the other legislative agencies?

This is the essence of the hearing.

Ms. ZELENIAK. Let me first start by saying that none of this has been explored by us in detail whatsoever. So anything we say comes as a "maybe" or "what if" or "if we could" background.

We really have not explored this in any detail and it would really take a considerable amount of time to do that.

Mr. FAZIO. That was not your earlier assignment?

Ms. ZELENIAK. It really wasn't. We really were looking at House requirements before. So this is a new look at things and really would take a considerable amount of time to study. However, since you have asked, in theory, one central base system of all Legislative Branch Agencies should result in some cost, planning, and management advantages.

In theory, when you consolidate sometimes you can get rid of some of the excess. The disadvantage in implementing such a system is that it is going to take a considerable amount of time while working with a considerable number of egos. Looking at the operation in some other large organizations, you often see how dissatisfied the users become when they feel their own individual needs are not being attended to.

So probably you might have to look at consolidation as some type of combination. If each agency is authorized to procure its own PBX or its own centrex we are going to have network issues that should be handled by a central body.

Right now we are all on centrex so we really leave it to the local telephone company to connect us to one another. When we start putting in our own systems, we are going to have to decide how we make those connections. It is good to have modern telephones and it is good to have nice, skinny cables but whether we can talk to each other is going to be the biggest issue.

So I believe that control over the network is something we really need to look at as a group. As far as the everyday user needs, my opinion is that those needs are better left with each individual agency because the needs of Congressmen are probably very different than the needs of Congressional Research employees at the Library.

So you are probably going to have to maintain some individual authorization.

CONSOLIDATED EFFORT

Mr. FAZIO. There are number of areas where there is a need to work together, House and Senate, and other agencies involved. We aren't always successful in our efforts.

I don't know whether those meetings will take place or be successful.

There are lots of examples of where we fail to communicate with each other, however in the telecommunications area we have not had to worry about it.

In the future it is going to be our responsibility to address this issue.

Ms. ZELENIAK. Yes.

Mr. FAZIO. I am not interested in making those tasks any more difficult than they already are, but to achieve the benefits derived from a deregulated environment we are going to have to operate more effectively.

Mr. Rose offered some suggestion earlier that seemed reasonably well thought out about how we might accomplish it organizationally. I mentioned to him privately, I am going to say it publicly, perhaps some sort of a joint committee needs to be organized with

membership in both the House and the Senate and representatives of the users' group, I might say, people who represent the other independent entities within the Legislative Branch of Government, to make sure that we do the kind of job that we would all expect done in our behalf for the future.

In other words, the day comes when we are not serving the Members with the kind of quality they have been led to expect, the day comes when the people who try to serve us in the Legislative Branch of Government are not capable of providing those services, then we will all be answering to our colleagues and wondering why we let the opportunities get away from us.

Those are areas we need to explore. I would be interested in your reaction to that and I would also entertain the reaction not only of Mr. Rose's proposition but that concept when other witnesses come before us later today and tomorrow.

Does anyone want to comment on that?

This means satisfying legislative power centers and individuals in both Houses. It is not an easily conceived legislative proposition.

It would be very difficult to balance and enact it, but I would be interested in hearing any thoughts on that.

Mr. COLLEY. I think I would be interested in Boyd pursuing what Susan had said about the integrated system.

Mr. BOYD ALEXANDER. I think something like a joint committee would be useful if we are going to have the compatibility and connectivity that Mr. Rose, Mr. Thomas, and Mr. Lewis have all talked about, at least from the standpoint of data communications—and that is the only thing I can address here. There has to be a group that will be willing to establish standards so that if there are different kinds of equipment, those standards are met.

That is going to require people in each organization involved, including the House, the Senate, and the Library of Congress, working out those standards. Otherwise, it is going to be difficult. I think it is a sensible approach.

Mr. FAZIO. Mr. Rose.

Mr. ROSE. You are on a very good and proper line of questioning. I believe that as you said in your comments when you introduced these questions, nothing in the operating rules of the House or in the law that sets up the various legislative agencies gives oversight authority for overall legislative communications to any one agency or committee.

That clearly must be addressed. I would think if a joint committee with a very limited scope of responsibility in this one area were established, that the House might be willing to go along with it.

I would like to ask and suggest a couple of things to Ms. Zeleniak just to get her reaction to it.

I had hoped that what we do in the House with our system could be a pilot for the rest of the Legislative Branch. My thought had been that maybe this could lead to the acquisition of a central office-type switch at some point, to tie all Legislative Branch PBXs together into a single network and serve as a network hub manager. In that regard some day we might have this central office switch to provide direct phone service to Legislative Branch agencies that would elect to use it for that purpose rather than acquiring a PBX.

It could control access to local exchange public switch network, other Government networks, and inner-city private sector networks, and other common carriers for all participating agencies.

It could also be a candidate to manage wide band gateways among and between computer systems, local area networks, high speed printers, remote job entry devices. Obviously, I am thinking pre-Gramm-Rudman.

Mr. FAZIO. I was, too, with regard to the joint committee.

Mr. ROSE. Right. Would you not concur that such a growth of our planned system would be possible and possibly useful?

Mr. FAZIO. I guess the question is a planned system or overall system. Susan.

Ms. ZELENIAK. I guess I tried to say before that the technology allows us to do many things. If we want to take our system and connect it to a larger Legislative Branch system, I think we can do that.

I am not exactly sure of the question—are we saying our system 85's would be connected to a larger central office base?

Mr. ROSE. No. I am saying to you that, if we desire, we could get a central office-type switch and use that as the hub manager to manage all of the PBXs within the Legislative Branch's organizations that are under the purview of this subcommittee or provide the direct phone service for those that didn't want to go to their own PBX.

Ms. ZELENIAK. Yes.

Mr. ROSE. I am asking you not a policy question, but just a simple question, does that not sound like a logical architecture?

Ms. ZELENIAK. Yes.

Mr. ROSE. Would not what we have done in the House fit very nicely into a concept like that?

Ms. ZELENIAK. Yes.

Mr. ROSE. That would be one way to go is all I am asking.

Ms. ZELENIAK. Yes.

Mr. ROSE. Mr. Chairman, one last thing.

Mr. FAZIO. Yes.

Mr. ROSE. Mr. Thomas and I felt very strongly that in-house PBXs, an in-house PBX was in order, not just for the physical protection of the switch facility itself, but because telephone common carriers operating in the regulated environment enjoy some liberties by law and tariffs to monitor conversations for system maintenance purposes.

While this may be perfectly appropriate in systems characterized by many small users for whom advanced notice may be impractical, routine monitoring of Legislative Branch conversations raises serious questions of national security and confidentiality.

When it must be done for some operational reason, it is imperative that notice be given and the listening employee be an employee of the Legislative Branch subject to the discipline rather than an employee of the common carrier.

I don't believe that most people in the House know that our FTS system that many use after five o'clock is the Executive Branch's phone system. I had suggested a little red sticker that we would put on all the headsets saying, "you are talking over Ronald's telephone, be careful. Watch what you say to your constituents."

Thank you, Mr. Chairman.

Mr. FAZIO. Thank you, Mr. Rose.

I want to thank all of you for your participation here this morning. If you have any final comments you would want to make, you are more than welcome.

Ray.

Mr. COLLEY. I don't think it has been left out, Mr. Chairman. I think it might need to be re-emphasized.

The Clerk staff, Susan, myself, our other associates that serve in the support group for the Committee on House Administration and there has been a real fine degree of cooperation in that operation.

We have met with the full committee staff and with the subcommittee staff whenever and wherever needed. Susan Zeleniak and Mike Murray have continued to work with them on a daily basis on the final work on the contract for the new system.

Some of your questions are beyond what we have been doing, but it does not mean we won't try to help out when invited to do so.

Mr. FAZIO. I will insert a question to be answered for the record concerning a consolidated system.

[The question and response follows:]

CONSOLIDATED SYSTEM

Question. How could a consolidated system be operated and managed. What economies, if any, do you consider possible by a consolidated system? Would a common system adversely impact your current operations? What would be your views concerning methods for achieving and managing a cost-effective consolidated telecommunications capability for the Congress and its agencies?

Response. At this time, this office has not studied the management and operations of a consolidated system. At the direction of the Committee on House Administration, we have instead concentrated our efforts on the RFP developed to meet the needs of House telephone users. However, as legislative communications needs become more technical and complex, the establishment of such an organization may become necessary to assure network compatability and comprehensive long range planning. In theory, a consolidated management team should provide the cooperation and authority necessary to meet operational requirements in the most cost effective manner. However, implementing such a system will take considerable time and planning. In order to realize the benefits, the team must include highly technical as well as management personnel and must have authority to make decisions in certain technical areas. Additionally, the team must have representation such that all user needs are met and not just those of the larger organizations.

A consolidated team could be useful to this organization provided it does not take on responsibility for day to day operations such as moves, changes and installation of additional telephone sets. These functions should remain at the agency level to assure timely implementation.

If a consolidated group is to be established, careful attention must be given to the structure, skills and authority of the team. All legislative agencies should be represented by personnel knowledgeable on telecommunications and user needs. If the team is to be successful, guidelines must be established and agreed upon that allow the group to act in certain areas and not just become a forum for ideas.

ADDITIONAL STAFF

Mrs. BOGGS. Mr. Chairman.

Mr. FAZIO. Mrs. Boggs.

Mrs. BOGGS. I was wondering about the practical aspects of the personnel. Do we have traffic engineers on board?

Ms. ZELENIAK. No.

Mrs. BOGGS. Do we really have enough people employed who could use and coordinate all these new systems?

Ms. ZELENIAK. No. At this time we do not. I am so glad you brought it up. We would need—we definitely would need to add staff to take over some of the functions that are going to be needed to be done especially in terms of what you just brought up, traffic engineering and networking.

We probably would need to add somewhere between 8 and 12 people to do the job right.

CLOSING REMARKS

Mr. FAZIO. Mrs. Boggs, that is one of the key questions. It has to be resolved in terms of how contract relationships are dealt with, whether they be C&P and AT&T or others.

Decisions must be made about additional staff responsibilities and additional expenditures for those services on a contractual basis.

The Appropriations Committee has the responsibility to pay the bill either way, but there will be different outcomes based on the various decisions. It is a very key issue and I appreciate your bringing it up.

Thank you all very much for your testimony. We will proceed with the Library of Congress.

MONDAY, APRIL 28, 1986.

LIBRARY OF CONGRESS

WITNESSES

WILLIAM J. WELSH, THE DEPUTY LIBRARIAN OF CONGRESS

GLEN A. ZIMMERMAN, ASSOCIATE LIBRARIAN FOR MANAGEMENT

HERBERT S. BECKER, DIRECTOR, AUTOMATED SYSTEMS OFFICE, MANAGEMENT SERVICES

HOWARD J. KIERZEWSKI, SENIOR COMMUNICATIONS ENGINEER, AUTOMATED SYSTEMS OFFICE, MANAGEMENT SERVICES

JANET A. SMITH, CHIEF, CENTRAL SERVICES DIVISION, MANAGEMENT SERVICES

HORACE J. SALDI, COMMUNICATIONS MANAGEMENT SPECIALIST, CENTRAL SERVICES DIVISION, MANAGEMENT SERVICES

JOHN O. HEMPERLEY, BUDGET OFFICER

Mr. FAZIO. Let's begin with some background on telecommunications at the Library of Congress. Telecommunications and data processing management for the Library of Congress is provided by the Associate Librarian for Management through two subordinate organizations.

Telephone and related services are provided by the telephone management and maintenance force in the Central Services Division. The Library procures telephone services directly from the C&P Telephone Company at an approximate annual cost of $2.0 million. It is served by the same switching center which serves the House and Senate. The Library of Congress participated in the Government telephone bulk purchase of telephone equipment.

I assume you have more than paid for that purchase in recent years. Mr. Lewis, I am sure, shares with me the interest in planning for telecommunications as we renovate the Jefferson and Adams buildings.

Data services are provided through the Automated Systems Office which maintains an engineering and maintenance force and operates a computer center, special cable distribution system, local area and regional telecommunications networks.

Current plans include an $80,000 contract to AT&T to design a new high tech cable system for voice, data and video telecommunications. Approximately $700,000 has been programmed in FY 1987 for the new cable system, commencing with the renovations of the Jefferson and Adams buildings. However, this amount may be inadequate. Secondly, the Library intends to procure a digital telephone/data switching system and is currently evaluating proposals received in response to an RFP issued for that purpose. The estimated cost of the switch is $7,000,000, but no monies were programmed for FY 1987.

INTRODUCTION OF WITNESSES

I would like to welcome Bill Welsh, the Deputy Librarian of Congress who I know made a special effort to be here, and all the others on the staff, particularly Glen Zimmerman.

I would at this time ask you, Bill, if you want to introduce the rest of the people you brought and make whatever comments you would like.

Mr. WELSH. Mr. Chairman, I would like to introduce the staff. We have John Hemperley, our Budget Officer; and Janet Smith, Chief of Central Services. Glen Zimmerman, you recognize as Associate Librarian for Management. Ray Saldi, Communications Management Specialist, Central Services Division, Management Services; Herbert Becker, Director, Automated Systems Office, Management Services; and Howard Kierzewski, Senior Communications Engineer, Automated Systems Office, Management Services.

I particularly want to read the statement because of the comment Mr. Thomas made about it. I think it is important to get what we are doing into the record.

DEPUTY LIBRARIAN'S STATEMENT

Mr. Chairman, I appreciate the opportunity to appear here today and to speak to the Library of Congress telecommunications needs. As we are all aware, telecommunications is the science of communicating at a distance. Electrical communication at a distance was pioneered in America by Samuel Morse.

In April 1838 a bill was introduced in Congress to appropriate $30,000 for the construction of a telegraph line between Washington and Baltimore. It took five years to realize an appropriation action, approved March 3, 1843.

The first message was sent by Morse on May 24, 1844, from the Capitol Building, "What hath God wrought." Today we are still trying to answer that question.

During the first half of the 20th Century, the telephone overtook and displaced the telegraph as the primary telecommunications system in the United States. The telegraph, however, recovered some of its importance when machines began to talk to machines—first with teletypewriters and later with computers and their associated terminals.

The issue of how best to satisfy voice communications needs and data communications needs is still with us. We also must now add images or pictorial communication needs to the equation. The Library of Congress, as the largest depository of knowledge in the world, requires that all of these needs—voice, data, and pictorial images—be available now and for the next several decades.

The need to plan for the future in the field of telecommunications particularly at the Library of Congress is critical because the renovation and restoration of the Jefferson and Adams Buildings requires the Library to make decisions now for the needs of the Library into the 21st Century.

The Library of Congress, after careful study and inquiry, has determined that its telecommunications needs can best be served through implementation of the concept of "universal connectivity." That is the capability of any terminal, word processor, or personal

computer to efficiently communicate with most other systems whether inside or outside of the Library. Two things are needed to implement universal connectivity: first, transmission or wiring systems through which the electronic signals travel, and secondly, a switching system which directs those signals along the most efficient paths.

There are several very important requirements to the transmission and switching systems if they are to realize the goals of a "universal connectivity" environment. Among the most important are: the system must move electronic bits of information from one location to another without showing any affinity for any manufacturer's equipment or particular set of electronic characteristics; the system must be readily available and connect all Library of Congress locations without requiring special installation; and, the system must eliminate the need for one-of-a-kind installations whenever a user requires the use of a new system.

VOICE AND DATA COMMUNICATIONS

The physical system which best meets these needs is a combination of twisted copper wire, or telephone wire for transmission of voice and low-to-medium-speed data signals, and a fiber optic cable system. What we are talking about is this piece of cabling I have in my hand. This accomplishes all of these needs.

This is the fiber optic cable, two lines for simply pulling the cable through, and these four wires here are the shielded, twisted-pair cables and these are the four that are unshielded.

It is as simple as that. This is what we need to pull through in the renovation of the Adams and Jefferson Buildings.

The Library has a design contract with AT&T to help us plan, configure, and prepare engineering drawings for an AT&T premise distribution wiring system. This system is being designed to be totally independent of any manufacturer's switching systems, including AT&T's. It will provide a Library-wide wire and optical fiber distribution network to support the variety of communicating devices which the Library now has, and those it is likely to acquire over the next thirty years.

The benefit of this multipurpose wiring system is that it eliminates the necessity of making one-of-a-kind installations whenever a user requires access to a new system. The Library now pays the telephone company $60 per hour to make moves and changes.

Also, there will be a savings in the time needed to bring the user system up to an operational level of performance. Finally, it is more cost effective, in terms of manpower and time, to manage and control the miles of physical wiring in a large three-building complex such as the Library when the wiring system is a single coherent standardized system, rather than the separate voice and data wiring systems which we have today.

As you know, we are requesting $700,000 in the fiscal year 1987 budget for the Library of Congress, under the Furniture and Furnishings appropriation, for telephone and data transmission cabling for the Jefferson and Adams Buildings. We estimate that the premise distribution system has sufficient capacity to meet the voice and data transmission requirements of the Library for at

least 20 years after renovation. The wiring will be owned by the U.S. Government and will be a part of the buildings. The opportunity for cost-savings is dependent on installation of the new wiring during renovation.

DIGITAL SWITCH

Our planned premise distribution system is one-half of the overall telecommunication system needed to implement "universal connectivity". The other vital half is the switching mechanism to allow the rapid interconnection of any of the many types of devices which we have and are planning to get in the future.

The modular nature of digital switches makes it possible for a single system to accommodate this diversity of requirements and still maintain compatible interconnect capability with other networks on Capitol Hill and elsewhere. Adherence to standards is the key to this capability.

On January 31, 1986, the Library received eight responses to a Request for Proposal for procurement of an integrated voice data digital switch. These responses were technical proposals intended to accomplish two broad objectives: one, to lower current telephone service costs; and two, give the Library integrated data handling capacity for modular future expansion. We anticipate that the technical evaluation will be completed within two months. Those vendors whose responses are considered technically feasible will be invited to submit price proposals. We expect to be able to reach a decision promptly. It is anticipated that the useful life of the switch equipment is more than ten years.

CONCLUSION OF STATEMENT

Planning for major endeavors such as the Library's wiring system and the integrated voice/data switch have naturally led to many discussions of the significant costs involved. These discussions, concentrating on means of reducing costs, have begun with Legislative Branch support staff.

Recent discussions have examined the concept of creating a single telephone and data switching system to be shared by members of the Capitol Hill community, primarily the Senate, the House, and the Library. I understand the Senate has recently made a decision about their telecommunication needs.

The Library of Congress believes a more practical alternative to an integrated system may be individual systems which have been designed and specified according to a set of commonly agreed upon standards. Such standards would ensure compatibility between the systems.

Such standards could be arrived at through administrative, technical, and engineering consultations between members of each organization. It might be possible to develop a coordinated contracting effort to specify and ensure equipment compatibility.

This would also assure a high degree of compatibility for voice and data transmission without having to resolve complex management issues. This approach would undoubtedly speed up the introduction of the new technology in all the participating organizations

because it could be done in phases with less need for continuing coordination in day-to-day operations.

My colleagues and I would be happy to answer any questions you may have.

CABLING IN THE JEFFERSON AND ADAMS BUILDINGS

Mr. FAZIO. Thanks very much, Bill, for your comprehensive statement.

One of the concerns we have is whether or not it is possible to do the integration of the telecommunications network in the renovation of the Jefferson and Adams buildings. Is it something that can be agreed upon at this point?

Have you requested adequate funding?

This is a rather technical point for our committee. Do you think the project is under-financed in terms of the desire to meet that?

Mr. WELSH. Are you referring to the $700,000?

Mr. FAZIO. That $700,000 appropriation for wiring.

Mr. BECKER. That is the very best estimate we have at this point. Until the AT&T contract is done so it can be priced out we can't come up with a more refined figure. We still think that is quite close to what it would be.

Mr. FAZIO. That would only relate to Jefferson and Adams; is that correct?

Mr. WELSH. That is correct.

Mr. FAZIO. The Madison building is separate?

Mr. WELSH. We have no estimate on that.

Mr. FAZIO. I have some questions to be answered for the record on the subject of cabling.

[The questions and responses follow:]

TELECOMMUNICATIONS PLANS

Question. We understand the Library also has plans for a new telecommunications cable system. What is the extent of these plans?

Response. The Library does *not* have plans for a new telecommunications cable system. Rather, the Library has a multipurpose premise distribution system, currently being designed by Library staff and AT&T, which will provide a universal communications outlet at each of approximately 9000 user locations in the Library's three buildings on Capitol Hill. An outlet can be installed at each potential user location and will be as easy to use as the common power outlet located near each user's desk today. The communications outlet can provide quick access to any of three groups of transmission media. Modular telephone jacks could connect to a user's telephone and interface the voice telephone and data terminal to either 24 American Wire Gauge (AWG) twisted copper telephone wire or to shielded pairs of 22 AWG twisted copper referred to as data grade telephone wire. If the user has a high performance data terminal such as an optical disk terminal, access to the fiber optic cable network will be provided at the outlet through separate modular jacks. Thus, a single communications outlet located near each user's work area will allow easy access to copper wire and fiber optic cable providing an aggregate data transmission rate of over 8 giga bits (thousand million) of data or voice traffic each second. To offer a perspective, today's enhanced voice digital telephones require data transmission rate of 64 KBPS (thousand bits per second). The highest performance systems we currently have, the optical disk terminals, require about 180 mega (million) bits per second. It is apparent that we have sized the premise distribution system with sufficient capacity to meet the voice and data transmission requirements of the Library staff and users today and for the next twenty years. The design of the complete system will be finished in February 1987. Early portions of the copper wire network will be in place prior to installation of the voice portion of the Library's integrated voice and data switch, now scheduled for October 1986.

Major portions of the design are scheduled for installation in the Jefferson and Adams buildings so that the final copper wire and fiber optic network will be in place in those buildings as each renovated area is completed. The Madison building will be brought up to final system specifications during the period June 1986 through June 1989.

Question. What are the costs associated with the procurement and installation of new cable?

Response. The estimated costs associated with a number of possible scenarios (some of which are mutually exclusive) contained in the multipurpose Premise Distribution System which the Library is currently designing are given below.

Library of Congress—Premise Distribution System (PDS) Implementation Options

Library building wiring scenarios:	*Cost*
Implement copper PDS, copper backbone and fiber to selected stations in Adams and Jefferson buildings	$224,733.45
Implement copper PDS, fiber backbone and fiber to selected stations in Adams and Jefferson buildings	666,277.96
Implement total PDS in Library Adams and Jefferson buildings	1,599,067.10
Implement 22 AWG copper backbone in Madison building	501,010.09
Implement copper PDS, 22 AWG copper backbone in Madison building	850,021.44
Implement copper PDS, fiber backbone, and fiber to selected stations in Madison building	3,198,134.21
Implement fiber PDS, fiber backbone in Madison building	4,129,745.50
Implement total PDS in Library Madison building	5,196,968.09

UNIVERSAL CABLING

Mr. FAZIO. Was the Madison building constructed with the capability of providing universal cabling?

Mr. WELSH. No.

Mr. FAZIO. We didn't do what Mr. Rose was suggesting earlier about new office buildings around the country.

Mr. WELSH. We did not have the benefit of technology at that time. The planning of that began 25 years ago.

We could not have anticipated it. We are trying to do it now.

Mr. FAZIO. That is more our time schedule. What about other facilities that are not in the three major buildings?

Mr. WELSH. We have a Landover Annex and we have an annex for the national library service for the blind. Are they included in this plan?

Mr. BECKER. They are part of the plan for the switch procurement.

Mr. FAZIO. Have you requested any additional funding for wiring?

Mr. WELSH. No, nor have we asked for any money for the Madison Building, Mr. Chairman.

TELECOMMUNICATIONS COMMONALITY WITHIN LEGISLATIVE BRANCH

Mr. FAZIO. Let me ask you a general question about the desire or concerns you might have about the commonality issue, that is the ability to share data with the other agencies in the Legislative Branch.

You have alluded to the House and the Senate in your concluding paragraphs, but do you see this as an opportunity to serve from the standpoint of the Library or do you see this as a way of impeding your own management authority?

Let's be very candid about it. How do you view the potential for a common system?

Mr. WELSH. Not only an opportunity. I think this is an absolute necessity. I think there is no question about it.

We must be able to communicate more effectively with the House and the Senate. Equally with GAO. These are two types of organizations that are doing essentially the same work.

There could be a degree of duplication. If there is a better communication system that limits the duplication or eliminates it then we are for it.

There is no question about that at all. It is simply a question of how it is done. What we propose is that—I think Boyd Alexander spoke to that, was setting up a set of standards. This was our statement.

We are ready at that point where we have specified what we think is needed for us to communicate on the Hill. We have other requirements as well, Mr. Chairman, as you well know. We have to be able to communicate with the State Library of California, to the networks at OCLC, and to the research library group so we have to communicate in many different directions.

In the field of bibliographic data communication, we have established the international standard in the Library of Congress for the entire profession, for that entire communication, so we are not only experts in the field, but we are convinced that is the only way to go.

There must be compatibility. It is essential.

Mr. FAZIO. So you see the day, and we may be almost there now, where CRS, CBO, OTA, for example, are able to have a common data base and pull up information that is available?

Mr. WELSH. Yes. As you are aware, one of the future elements that is involved in this particular cable is the fiber optic. One of the areas we are working in is optical disk technology. We want to be able to communicate from the Library of Congress and through CRS all the data we are going to put up.

We now have the Congressional Record on a current basis available that way. That ought to be available over here just as rapidly. It ought to be available in GPO. That capability suggests to me there is another way even to produce that.

Mr. FAZIO. In theory, that information will be available at the Federal library centers.

Mr. WELSH. That is right.

Mr. FAZIO. Yesterday's Congressional Record will be up on the computer even before it is available through the mail.

Mr. WELSH. Yes; the discussion about the connection with the Member's office is because I am personally interested in seeing the State library connected to the resources of the Library of Congress. It has to be a two-way flow of information. There is a great deal of data out there we ought to have.

Mr. FAZIO. You are talking wiring which is important, but we are also concerned about other areas where we need to work together.

POTENTIAL SAVINGS FROM COMMONALITY

The purchase of common equipment, switches, procurements, and other types of procurement that might be done in common to achieve potential cost savings.

There are some areas where jurisdiction may be a problem. Bill, how do you feel about the need to call someone who does not work for you to get your phones fixed?

You know you have to do that when you call C&P.

Mr. WELSH. I made that call and I found they were working on your phone. That is not the problem.

I would rather manage our own destiny. I think Mr. Thomas spoke about that.

Mr. FAZIO. I have a question to insert in the record concerning a centralized telecommunications capability on Capitol Hill.

[The question and response follow:]

CONSOLIDATED CAPABILITY

Question. What would be your views concerning methods for achieving and managing a cost-effective consolidated telecommunications capability for the Congress and its agencies?

Reponse. We believe a more practical alternative to a single integrated system may be individual systems which have been designed and specified according to a set of commonly agreed upon standards. The standards would ensure compatibility between the systems. Such standards could be arrived at through administrative, technical, and engineering consultations between members of each organization. It might be possible to develop a coordinated contracting effort to specify and ensure equipment compatibility. This would also assure a high degree of compatibility for voice and data transmission without having to resolve complex management issues. This approach would undoubtedly speed up the introduction of the new technology in all the participating organizations because it could be done in phases with less need for continuing coordination in day-to-day operations.

TELECOMMUNICATIONS STAFF

Mr. WELSH. There is one small difference between what we are doing in the way of expertise. Ray Saldi heads the staff of three plus himself. He can repair a phone.

Mr. FAZIO. Three in spite of Gramm-Rudman?

Mr. WELSH. Herb Becker's staff can repair theirs. There are 37 people in the computer center that have communications expertise. So with Howard as one of the principals.

We have quite a bit of expertise in the Library of Congress.

Mr. FAZIO. In other words, as in the case of the House you are capable of handling the computer system completely and you have a liaison staff with C&P.

Mr. SALDI. We handle only the voice requirements.

Mr. FAZIO. How can you do it with four people?

Mr. SALDI. We work very hard.

Mr. FAZIO. I have some questions regarding telephone services to be answered for the record.

[The questions and responses follow:]

QUESTIONS FOR THE RECORD

Question. How does the Library obtain its telephone service? GSA or the telephone company directly?

Response. The Library obtains its telephone service direct from the C&P Telephone Company.

Question. What is the size of telephone service in the Library? How many lines and what instruments are there?

Response. The Library currently utilizes approximately 5800 CENTREX lines, 900 key type telephones, and 4000 single line telephone sets.

Question. What is the total estimated cost of telephone service for the Library in fiscal 1986? How much is in the fiscal 1987 budget?

Response. Total estimated cost of telephone service for the Library in fiscal 1986=$2,400,656. Budget for cost of telephone service for the Library in fiscal 1987=$2,494,956.

Question. What are the major telephone cost items and the costs for each? (Provide a detailed beakout of all costs for the record.)

Response.

FY 1986 Estimated telephone service:	
Local telephone	$1,228,625
Local data	228,813
Long distance:	
DDD + WATS	463,660
WU TTY	24,000
DATA	170,782
Salaries	236,276
Telecommunications equipment	13,500
AT&T repairs	35,000
Total	2,400,656
FY 1987 budget for Library telephone service:	
Local telephone	1,288,625
Local data	228,813
Long distance:	
DDD + WATS	493,660
WU TTY	24,300
DATA	174,782
Salaries	236,276
Telecommunications equipment	13,500
AT&T repairs	35,000
Total	2,494,956
Renovation cost:	
Cabling and moves	700,000

Question. Please provide detailed organizational, staffing and cost information for these organizations who can order telephone equipment or facilities.

Response. Ordering of all telephone services and equipment for the Library is performed by the Communications unit of the Central Services Division. The Central Services Division, headed by a Chief who reports to the Associate Librarian for Management, is organized as follows: The Office of the Chief is responsible for planning, directing, and coordinating the activities of the division, coordinating work with other offices, and serving as liaison with Congressional offices, Federal agencies, and other organizations in appropriate matters. The Chief provides general direction to the Administrative Services, Paperwork Management, and Printing and Processing Sections and the telecommunications and radio functions. As the Records Officer of the Library, the Chief is responsible for developing complete historical records of the Library's policies and programs, for the Library's compliance with LCR 1917-3, *Availability of Library Records,* and for the Library's official seals, excluding the seal of the Copyright Office. The Communications Unit provides service in the operation of the Centrex system and its informational services, maintains liaison with the telephone company relative to operating problems and telephone services, and sends and receives teletype messages.

Central Services Communications Unit

Title-series-grade:	*Annual salary*
Communications Mgmt. Spec. GS-0391-12-07	$37,943.00
Communications spec. GS-0393-09-07	26,166.00
Telephone mechanic. WG-2502-10-02	23,524.80
Telephone mechanic. WG-2502-10-01	22,547.20

Mr. WELSH. Ray Saldi handles the voice and Herbert Becker's staff handles the data.

Mr. FAZIO. Why do you need so many people in the computer center?

Mr. BECKER. The 37 refer to the whole computer center staff. Eight of those people are in Technical Control and actually hookup and arrange for terminal access to the main frame and our telecommunications network.

Mr. FAZIO. You have that management right now.

Mr. WELSH. Yes.

Mr. FAZIO. You wouldn't want to share that with anyone else?

Mr. WELSH. No. When we have a problem we call Ray and the matter is taken care of. Occasionally he says we can't do it because C&P is taking care of it, but it works beautifully.

Mr. FAZIO. You have people who duplicate what C&P is doing for other people on the Hill?

Mr. SALDI. C&P and AT&T, yes.

Mr. FAZIO. You can do it with three or four people?

Mr. SALDI. We have been doing it.

Mr. FAZIO. What types of responsibilities are beyond you? When do you have to go out for additional help?

Mr. SALDI. Actually, in the key equipment itself, when the people are not familiar with the way the system has been wired. AT&T, when they rewired the system, had their own way of doing it. Everybody has their own way of doing it. It takes a lot of time for our people to learn.

Mr. FAZIO. Basically you hire people from AT&T?

Mr. SALDI. We have to at $60 an hour.

Currently, our people go in there and rewire it, instead of trying to fix it. This way it saves time trying to figure out what AT&T did.

We just re-do it ourselves and this way we know what it is.

Mr. FAZIO. The $60 an hour AT&T person is contracted with on a short term basis?

Mr. SALDI. Yes, sir.

Mr. FAZIO. You are really not maintaining your entire system with four people.

Mr. SALDI. We are now. In the beginning we were calling AT&T to come and repair. Little by little, our people started to learn the system.

Mr. FAZIO. In effect, you have been looking over their shoulder as they work?

Mr. SALDI. Yes, sir. They didn't like it, but we did it anyway.

Mr. WELSH. We had considerable difficulty when we first occupied the building. That has been taken care of now.

Mr. FAZIO. So you are increasingly capable of performing your own work.

Mr. SALDI. Yes, sir.

Mr. FAZIO. That was a conscious policy you implemented?

Mr. WELSH. Yes.

Mr. SALDI. That includes taking care of our outlying areas, too.

Mr. FAZIO. Do you have a cost savings projection on that?

Mr. WELSH. I don't have one.

Mr. ZIMMERMAN. We can get the figures, Mr. Chairman. You may recall a few years ago when we went through this on buying

out we felt it was important to have the control of our own resources. We have hired the telephone mechanics to take care of these types of problems.

Mr. WELSH. There were considerable savings, Mr. Chairman, in the cost of buying the equipment.

[CLERK'S NOTE.—The Library of Congress provided the following information for the record:]

The Library Central Services Telephone Unit includes two Telephone Mechanics WG–2502–10 whose combined annual salaries and benefits are $51,599.00 [($23,524 + $22,547) + 12%).]

The same skilled personnel from the C&P Telephone Company would cost the Library $250,400 per year ($60/hr x 2087 hrs x 2).

The same skilled personnel from AT&T would cost the Library $139,992 per year ($5,833/mo x 12 mos x 2).

Mrs. BOGGS. Mr. Chairman.

Mr. FAZIO. Yes, Mrs. Boggs.

Mrs. BOGGS. With the new wiring, you will be able to do all of your in-house work?

Mr. SALDI. With the new wiring, ma'am, I think we are going to have to have people to do that. Not initially, but to maintain it.

Mrs. BOGGS. You will be able to maintain it in-house?

Mr. SALDI. After that, yes, ma'am.

LIBRARY COMPUTER CENTER

Mr. FAZIO. Let me ask some questions about the computer center. Do you use congressional cable systems for data communications?

Mr. BECKER. No. The Library does not use the system for data communications.

Mr. FAZIO. How do you handle your own program? Do you interrelate with others? In what manner?

Mr. BECKER. Within the Library it is done through direct cable connections in most cases and with the use of the twisted pair telephone lines for communicating outside the Library complex.

Mr. FAZIO. What kind of data do you get from outside?

Mr. BECKER. Mostly in the bibliographic area where we exchange with some of the libraries that Mr. Welsh mentioned.

Mr. FAZIO. You are basically the source of that information, aren't you?

Mr. BECKER. Yes.

Mr. FAZIO. Do you get data?

Mr. WELSH. Yes. For example, we have a program that is called "Name Authority" where some other libraries are doing the work for us to help in the creation of the actual data base. So we get information from Harvard and places like Texas and from the bibliographical network themselves.

This reduces our cost and we set the standards again for that operation so the nation benefits.

Mr. FAZIO. What about HIS? Do you deal with them?

Mr. BECKER. To a limited degree.

Mr. KIERZEWSKI. They interconnect with our computer, the House and Senate both, to the total of about 27,000 hours a year. The other agencies, GPO and GAO, are about 4,000 hours a year. So the big bulk is from the House and Senate.

We have direct tie lines with the Senate, our computer to their computer. The majority of the House communication is through dial-up facilities we also provide.

Mr. FAZIO. What is the distinction between those two, if you could give us some background.

Mr. KIERZEWSKI. The features of the lines we have with the Senate are full-time private lines that are used solely to interconnect the two computers together so that a Senate user calls their computer, but then the query is transferred to ours. Because we don't have direct tie lines with the House—they changed their computer equipment and it became non-compatible with ours—we made the dial-up facilities available so they can make a dial-up telephone call from their Member offices.

Mr. FAZIO. We may have our case study as to why there is concern about this. That was a decision that was made and it was just a matter of then adjusting to it.

There wasn't anyone in an overall position to judge as to whether that was a good decision, like a joint committee might provide.

The problem was solved by the dial-up approach. Is there additional cost involved in that?

Mr. KIERZEWSKI. Probably because these are telephone calls being made for that number of hours. I am not certain whether message units are involved or not.

Mr. FAZIO. Could we find out for the record?

Mr. WELSH. Yes, we will.

[CLERKS NOTE.—The Library of Congress provided the following information for the record:]

The dial-up facilities between House offices and the Library of Congress computer do not involve message unit charges. Each House telephone would cost $11.00/month for the basic phone service plus $40.00/month to lease a 212A (or equivalent) modem.

Mr. FAZIO. It sounds as if the Senate system is not only more compatible but potentially less expensive; is that correct?

Mr. KIERZEWSKI. I am not certain at this time.

Mr. FAZIO. You are not certain, but that is a possibility. Is there any user impact here in terms of time? Any negative side effect otherwise?

Mr. KIERZEWSKI. I don't think the users would know that much of a difference.

Mr. FAZIO. I have some questions regarding data communications to be answered for the record.

[The questions and responses follow:]

DATA COMMUNICATIONS

Question. Are there other special cable networks or cable connectors in the Library or from the Library to the House or other Legislative agencies? If so, what are they and what is their purpose?

Response. There are data communications trunks between the Senate and the Library Computer Center. The House uses local telephone dial-up facilities to reach the Library's Computer Center. Both the Senate/LC trunks and the House/LC dial-up facilities are used for legislative research by Congressional staff using the Library's SCORPIO facilities. Total usage for these purposes is measured at 27,000 hours per year connect time. Of that total 3800 hours per year are used by staff of GAO, CBO, OTA, and GPO. The library does receive analog video (television) transmission from the Congressional cable, and the Congressional Research Service at the Library produces informational television programs on public policy issues which appear on the cable system 3 hours each day. These daily television programs are provided to the head-end of the Congressional cable located in the Senate Russell Office Building via hand-carried tapes.

Question. Does the Library Computer Center organization also procure telephone and data communication service?

Response. The Library Computer Center procures data communications services; they do not procure telephone services.

Question. What telecommunications (data communications) capabilities does the data center have or acquire?

Response. The Library is capable of interactive data communications between the data center and approximately 4000 users at speeds ranging from 300 bits per second to over 150 million bits per second. In general, low and medium speed communications (300 bps to 19200 bps) are possible between the Library's 2 mainframe or 8 minicomputer processors and the 4000 terminal users. Higher speed communications (50 million bps) are used between mainframe computers. The highest speed data communications (180 million bps) are being used in the Library's Optical Disk Pilot Project. These services are available 24 hours a day, seven days a week over a 390 line network consisting of a combination of the public switched telephone system, leased private data lines, and Library owned data communications facilities. These data communications facilities allow the Library's users to have access to 23 major information systems consisting of more than 70 billion characters of on-line data.

Question. Please provide the record, the amount of data telecommunicated in a normal busy month (characters/bytes of data), the data communication rate (bits per sec.), the media utilized (local cable or commercial means), and the destination (city or agency).

Response:

TELECOMMUNICATIONS ACTIVITY AT THE LIBRARY OF CONGRESS NUMBER OF TRANSACTIONS AND BYTES TRANSMITTED FOR THE MONTH OF OCTOBER 1985

Agency and network access method	XMIT baud rate	Number of active terminals	CICS prod trans	Roscoe and test trans	Total trans	CICS prod bytes	Rosco and test bytes	Total bytes
Library of Congress:								
Dial	1,200	147	63,162	.....	63,162	52	.....	52
Local	4,800	789	2,755,397	272,982	3,038,379	3,038	215	3,253
Local	9,600	744	1,405,481	1,255,179	2,660,660	1,859	809	2,668
Trunk	19,200	45	5,336	.....	5,336	4	.....	4
Congressional Budget Office: Dial	1,200	1	1,573	.....	1,573	1	.....	1
Congressional Office:								
Dial	1,200	693	176,446	.....	176,446	139	.....	139
Local	4,800	6	5,700	5,247	10,947	14	3	17
Local	9,600	10	9,234	4,803	14,037	17	3	20
Trunk	19,200	72	14,951	.....	14,951	12	.....	12
Supreme Court: Dial	1,200	4	2,574	.....	2,574	2	.....	2
Executive Branch: Dial	1,200	12	18,620	.....	18,620	14	.....	14
Colleges and Universities:								
Dial	1,200	5	3,654	.....	3,654	3	.....	3
Local	4,800	1	4,705	.....	4,705	5	.....	5
Total		2,529	4,466,833	1,538,211	6,005,044	5,160	1,030	6,190

TOTALS INCLUDE PRODUCTION CICS PLUS (ESTIMATED) ROSCO PERCENT TEST ACTIVITY (BYTES X 1,000,000)

Most of our Data Communication links are located in this Washington Metropolitan area. However, a small number of terminals are located in the following cities: Cambridge, MA, Chicago, IL, Dayton, OH, Palo Alto, CA, and Pullman, WA.

Question. Please provide organizational, staffing and cost information for the data center organizations.

Response:

MANAGEMENT SERVICES COMPUTER SERVICE CENTER

Title	Wage code	Grade step	Salary
Computer Servcie Center:			
Chief Computer Service Center	0334	14–15	50,354
Asst Systems analyst	0334	09–01	21,804
Senior systems analyst	0334	14–05	50,354
Asst systems analyst	0334	09–05	24,712
Sec to Chief, Comp Svc Ctr	0318	06–08	19,785
Asst chief, Comp Svc Ctr	0334	13–04	41,358
Systems analyst	0334	12–03	33,727
Asst systems analyst	0334	09–05	24,712
Systems analyst	0334	12–02	32,673
Production Control Section: Computer scheduling spec	0334	11–01	26,381
Operations Section:			
Quality control supervisor	0332	09–10	28,347
Computer operator	0332	07–01	17,824
Computer room supervisor	0332	09–06	25,439
Computer room supervisor	0332	09–03	23,258
Computer operator	0332	07–04	19,606
Computer operator	0332	06–01	16,040
Computer operator	0332	06–02	16,575
Computer operator	0332	07–02	18,418
Peripheral equip operator	0332	05–09	18,230
Computer operator	0332	05–06	16,790
Computer operator	0332	05–03	15,350
Asst comp room supr	0332	08–06	23,030
Computer operator	0332	07–07	21,388
Asst comp room supr	0332	08–01	19,740
Computer operator	0332	05–04	7,915
Supervisory comp operator	0332	09–04	23,985
Computer operator	0332	05–01	14,390
Computer operator	0332	05–01	7,195
Computer operator	0332	06–01	8,020
Technical Control Section:			
Senior Communications spec	0393	11–05	29,897
Senior Communications spec	0393	11–09	33,413
Super Communications cont	0393	12–04	34,781
Senior Communications spec	0393	11–01	26,381
Communications specialist	0393	09–04	23,985
Communications specialist	0393	09–04	23,985
Communications specialist	0393	09–02	22,531
Communications specialist	0393	07–02	18,418

Question. **What are the total costs associated with telecommunications for the Library?**

Response. Annual telecommunications personnel, services, and equipment costs for FY 1986 are estimated at $3,443,875.

Question. **Please provide a detailed breakout of all Library costs associated with the provision of telecommunications.**

Response:

Personnel: [1]	
Telecommunications management [5]	$34,654
Telecommunications planning and engineering [5]	128,907
Telecommunications operations and maintenance [5]	422,999
Services:	
Voice	1,857,864
Data	446,268
Equipment—Voice:	
Leased	74,321
Owned [2]	103,818
Data:	
Leased	9,540
Owned [3]	233,938

Software—Data:	
Leased	101,647
Owned [4]	326

[1] Personnel subtotals include a prorated fraction of the time directly attributable to telecommunications for several groups of LC personnel.
[2] Owned voice equipment subtotals include the original purchase cost of the equipment divided by ten to give an annualized cost for equipment which is expected to have a ten year life.
[3] Owned data equipment subtotals include the original purchase cost of the equipment divided by five to give an annualized cost for equipment which is expected to have a five year life.
[4] Owned data software subtotals include the original purchase cost of the software divided by five to give an annualized cost for software which is expected to have a five year life.
[5] Personnel subtotals include multiplication by 11% for G&A.

UPGRADE OF TELEPHONE SYSTEM

Mr. FAZIO. Let me proceed with questions about the upgrade of the Library's telephone system.

What specific plans do you have for that in terms of new equipment facilities and services?

Mr. SALDI. What we anticipated is to have the switch put in initially for the voice system only. Phase II would provide for upgrading our voice plus our data, going into data at 19.2 kilobits asynchronous and 64 kilobits synchronous data for up to 6,000 voice/data stations in the Library's Adams, Jefferson, and Madison Buildings. Then our Phase III would implement the enhanced voice features again, up to 19.2 kilobits asynchronous data up to 64 kilobits synchronous data for up to 2,000 additional voice/data stations in the Library's annex in outlying areas.

Mr. WELSH. That cannot be translated, Mr. Chairman.

Mr. FAZIO. I am sure it would have been had it been possible. What are the time frames we are talking about in these phases and the associated costs?

Mr. SALDI. The cost we project is $11,530,000 over a ten year period. The system design would be $100,000, system purchase would be $9,702,000 approximately, including interest charges over five years and the system maintenance over the ten-year period would be $1,728,000.

Mr. WELSH. We planned to make the first incremental approval in October of 1986 but we are going to wait and see what the budget process will be before we do that.

Mr. FAZIO. For the record, please specify the equipment and facilities you plan to acquire.

[CLERK'S NOTE.—The Library of Congress provided the following information:]

DATA COMMUNICATION REQUIREMENTS

The Library plans to upgrade its telephone system through implementation of an integrated voice/data switch. Generally, the Library's voice and data telecommunications facilities and services will be upgraded in four phases which will:

(1) Implement basic voice functions for up to 7500 voice stations; to match the Library's current Centrex service.

(2) Implement enhanced voice features; up to 19.2 KBPS asynchronous data; up to 64 KBPS synchronous data; for up to 6000 voice/data stations in the Library's Adams, Jefferson, and Madison buildings.

(3) Implement enhanced voice features; up to 19.2 KBPS asynchronous data; up to 64 KBPS synchronous data; for up to an additional 2000 voice/data stations in the Library Annex locations.

(4) Implement voice messaging support for up to 3000 voice stations and local area network (LAN) support at greater than 1 MBPS for up to 1000 data stations at all

Library of Congress locations. Detailed information on their facilities and services is contained in *Statement of Requirements Library of Congress Integrated Voice/Data Switch November, 1985.*

Mr. FAZIO. We appreciate your patience. The delay will allow an attempt at an integrated approach, if it is possible. Have you performed analysis comparing the data communications requirements of the House and Senate and the Library, HIS, and other legislative agencies?

Mr. BECKER. Really, most of the analysis has been of our own requirements rather than the comparison.

Mr. FAZIO. Are you are in a position to understand and appreciate some of the other agencies you deal with as a result of that?

Mr. BECKER. Our requirement is much larger in the data area. Our calculations indicate that about 60 percent of the traffic would be data as opposed to voice. I think HIS testified that their data requirement was more in the 20 percent range.

Mr. FAZIO. We understand there is material you prepared for your requirements.

Mr. WELSH. Yes. This is the document I have here.

Mr. FAZIO. That would be useful to us in the record, because it provides your insights into the compatibility issue. Who did that study for you? Was that done by AT&T?

Mr. WELSH. This was done by ourselves. AT&T is also doing that other study we referred to earlier.

Mr. FAZIO. This is done by your own staff.

Mr. WELSH. Yes, sir. The statement of our requirements.

Mr. FAZIO. We will appreciate that for the record.

[CLERK'S NOTE.—The statement of requirements will be held in the Committee files for a short period of time.]

PHASING SEQUENCE OF VOICE AND DATA

Mr. FAZIO. Let me ask you a question about proceding first with voice, and data last, and the relative cost of that. There are some concerns along those lines. Would you provide a translated version of the reasons that may have been the decision?

Mr. WELSH. Let me begin that by saying when I learned about this I said I was not sure I agreed with that.

Maybe that was not the right approach, but there was quite a bit of discussion. Herb, why don't you start?

Mr. BECKER. A large part of it is, of course, the cost dimension. Also, at this point since we have not seen the cost proposals from the vendors this is an approach that we wanted to explore. Whether it is cost effective or not remains to be seen, but we knew that we were already spending a significant sum of money on voice service.

So the question is can we replace that without any significant incremental cost. The first part of the switch would handle voice and then we would add on the other capabilities. The question is would that be both a technically feasible and a cost effective way to go. That is what we are exploring since the phased-in approach is stated in the requirements to which the vendors responded.

Mr. FAZIO. How many people expressed an interest?

Mr. BECKER. Eight.

Mr. WELSH. Mr. Chairman, let me say another word about that. Depending upon the response, for example, if the costs are considerably low, then we may go voice because that is where the savings are in our present arrangement.

From an operational point of view, that is perhaps not the way to go. We have to wait until we get the responses evaluated before we make a final determination.

ADVANTAGES AND DISADVANTAGES OF COMMONALITY

Mr. FAZIO. Let me come back to the question I touched on a bit earlier, Bill. What is your opinion of the advantages and disadvantages of a broader telecommunications network, one element in the system with some of the various approaches we have talked about.

Mr. WELSH. I think the comments that Mr. Rose and especially Mr. Thomas made are ones I can support. It finally comes down to controlling your own destiny. We have so many needs that are different and if we have to wait our turn until your needs and the needs of the House are to be satisfied we won't get the type of service we are accustomed to getting.

That is the reason why we have been so very happy with having our own staff expertise and getting an immediate response. We don't have to wait for the Architect of the Capitol to tell us he is doing something else.

Even though I believe, as I said earlier fervently, that there ought to be and must be compatibility and the way to achieve that is develop a set of standards that are mutually agreed upon.

Mr. FAZIO. How do we do that under the given set-up?

Mr. WELSH. I thought you had the answer. Bring in a group of people together and work this out. I don't think they are so very different.

Mr. FAZIO. Do you think there is a need for additional authority to be vested to try to make sure we don't make mistakes and create problems relating to service or cost?

Mr. WELSH. I am not sure we need a joint committee, a group of that high power. I think the staffs should get together and try to work it out.

Mr. FAZIO. Are there examples of where that is working well, or is there a history of problems in that context?

Mr. WELSH. I know CRS, OTA, GPO, GAO, the top staff meets once a month and they seem to work very effectively. This group of lower level supports ought to be able to do the same thing.

The needs aren't that different. I realize there is a problem with the coaxial cable. We don't want that. This is what we want.

We see the need and that is where the problem lies.

Mr. FAZIO. It has been more technical and more equipment related than it has been getting policy makers to agree on what kind of data they want to exchange; is that correct?

Mr. WELSH. That is right.

Mr. FAZIO. That is not unusual in the private sector.

Mr. WELSH. We have no problem working with Boyd Alexander and other administrators. The Clerk of the subcommittee can also play a valuable role.

Mr. FAZIO. Will you provide additional information on this subject for the record?

[The question and answer follows:]

QUESTION FOR THE RECORD

Question. In your opinion, what would be the advantages and disadvantages if the Library were to join with one or more of the Legislative agencies (House, Senate, GPO, etc.) in a common telecommunications systems? Would a common system adversely impact your current operations?

Response. On first examination a combined system can be expected to produce cost savings in the areas of telecommunications equipment and services. However, any savings realized in these areas may be quickly overshadowed by tangible and intangible cost increases due to inefficiencies in direction, management, control, and administration of a combined system due to significant differences in the functions, organizational priorities, and management objectives of these bodies. In the final analysis, such a system may not be the most effective approach in an environment where technical concerns are not the only focus of the organizations involved.

INSTALLATION OF NEW SWITCH

Mr. FAZIO. Where would the new telephone switches and associated equipment be installed and when would construction begin if you were able to proceed?

Mr. WELSH. That will be in the data processing area. Again, as soon as we have evaluated the response, we could tell you.

Mr. FAZIO. Do you want to comment on the estimated time frame and costs?

Mr. BECKER. We have space in the computer center where a lot of the telecommunication wiring is now. The switch would be located right next to that area where there is sufficient space.

We don't anticipate any major construction costs or problems. We estimate about $25,000 would pay for the labor cost to actually install the switch.

Mr. FAZIO. I have some questions concerning the switches to be answered for the record.

[The questions and responses follow:]

Question. When will the new switches be installed and fully operational?

Response. The Library is currently investigating the installation of switching functions in phased increments according to the proposed schedule outlined in our Request for Proposals as shown below. We anticipate full operability of a function within 90 days of an initial delivery. Actual delivery schedules will depend upon Congressional and Library decisions which have not been addressed yet.

(1) Implement basic voice functions for up to 7500 voice stations; to match the Library's current Centrex service. *Delivery schedule: Oct. 1986.*

(2) Implement enhanced voice features; up to 19.2 KBPS asynchronous data; up to 64 KBPS synchronous data; for up to 6000 voice/data stations in the Library's Adams, Jefferson, and Madison buildings. *Delivery schedule: Oct. 1987.*

(3) Implement enhanced voice features; up to 19.2 KBPS asynchronous data; up to 64 KBPS synchronous data; for up to an additional 2000 voice/data stations in the Library annex locations. *Delivery schedule: Oct. 1988.*

(4) Implement voice messaging support for up to 3000 voice stations and local area network (LAN) support at greater than 1 MBPS for up to 1000 data stations at all Library of Congress locations. *Delivery schedule: Oct. 1989.*

Question. What savings are expected?

Response. On the basis of discounted net present cost, assuming the cost of money to the government is 10%, the digital switch shows a discounted net present cost which is $4,350,780 less than that of continuing with Centrex, over the ten year period of FY 1995, we expect cumulative savings of $8,214,360 for the digital switch over Centrex. Because of the assumptions stated, it may be conservatively estimated that 10 year savings will be in excess of $10,000,000 for the digital switch. The pay-

back period for the digital switch, in terms of cost-avoidance savings is approximately 10 years.

Question. What benefits are expected as a result of this procurement?

Response. The Library expects to satisfy its known and projected voice, data and image telecommunications requirements in the most cost effective manner.

ORGANIZATIONAL STAFFING

Mr. FAZIO. Let's talk about staffing.

Mr. WELSH. I would like to point out perhaps our organization puts us in a good position to help. Glen, as you know, reports to me. Janet reports to Glen. Herb reports to Glen and Howard reports to Herb and Ray reports to Janet, so in one department we have all of this expertise we need to perform this vital support function.

Mr. FAZIO. Will you need additional staff to operate and maintain the new system?

Mr. BECKER. We do not believe so. We have one vacancy in our telecommunications engineering staff and they have one vacancy in the telephone mechanics area. If both of those were filled, we could handle the new system.

Mr. WELSH. That is Gramm-Rudman.

Mr. FAZIO. The positions are held vacant due to Gramm-Rudman?

Mr. BECKER. Right.

Mr. FAZIO. So, you will not require additional staff with the new system?

Mr. WELSH. That is right.

Mrs. BOGGS. Mr. Chairman, I was wondering about a practical situation. When you change to the new system, how much of a problem is it going to be to change the numbers?

Mr. SALDI. We will have to change our number. We are not like the Senate and the House that have the one single number. Our 287 number is shared with Agriculture and Treasury. So the telephone company will have to change our number. About five years ago we went through this changing so we know what to expect.

Mrs. BOGGS. Is it going to be a problem for you?

Mr. SALDI. It is going to be an inconvenience. Let me put it that way.

Mr. FAZIO. That is an interesting question. I wondered why I got the Bovine Research Center one day when I was trying to get the Library. Now I know why.

Any other questions?

Mr. Lombard, are there other questions? Fine.

CLOSING REMARKS

Mr. FAZIO. We appreciate very much your willingness to sit through the longer session preceding you and appreciate the responses you have provided during this hearing.

Mr. WELSH. I find that very useful, our being permitted to come here and hear the earlier discussion.

Mr. FAZIO. You are very much an integral part of the Legislative Branch. We all benefit from what you provide us and while I understand your desire for a certain amount of autonomy and admin-

istrative accountability, there is a need to collectively resolve these problems in the Legislative Branch.

We are not certain about the outcome of all this, but it was time for a review. We appreciate your participation.

Mr. WELSH. Thank you, Mr. Chairman.

Mr. FAZIO. You are a wise man, Bill. Thank you. It's nice to see you all.

MONDAY, APRIL 28, 1986.

GOVERNMENT PRINTING OFFICE

WITNESSES

RALPH E. KENNICKELL, JR., PUBLIC PRINTER

PATRICIA R. GARDNER, ASSISTANT PUBLIC PRINTER FOR ADMINISTRATION

RAYMOND J. PLUTO, DIRECTOR, INFORMATION RESOURCES MANAGEMENT

JACK W. ISEMANN, DEPUTY DIRECTOR FOR INFORMATION

RAYMOND J. GARVEY, DEPUTY DIRECTOR FOR SECURITY AND SUPPORT SERVICES

Mr. FAZIO. We will now take up the Government Printing Office. I will provide some background information which I realize might bias some of the answers to the questions I will ask today, but it will help to set the scene.

The Office of the Assistant Public Printer for Administration is responsible for providing telecommunications and automatic data processing services for the Government Printing Office.

The GPO obtains telephone services through the General Services Administration at an approximate cost of $1,941,000 annually.

The Government Printing Office participated in a government-wide bulk purchase of telephones. This committee has found that to be rather a consistent fact about many agencies.

The GPO operates a computer center and local area data networks. A new data communications network which will connect 13 regional offices is being implemented.

The initial results from a telecommunications study indicated the need for separate telephone and data switching systems but subsequent increases in data communications requirements resulted in a recommendation to provide a common switching system using digital technology.

A $2 million request has been programmed in the Fiscal Year 1986 budget for a system and the GPO is ready to release a request for bid.

I would like to welcome Ralph Kennickell, the Public Printer, and a number of people from his staff.

Ralph, would you introduce your group to us and make whatever statement you would like. We will place any formal statement you have developed in the record.

INTRODUCTION OF WITNESSES

Mr. KENNICKELL. I would like to introduce, on my left, Assistant Public Printer Pat Gardner, former Manager of Printing Procurement.

The first Director of our newly created office of Information Resources Management is Raymond J. Pluto, formerly Director of our Data Systems Service.

Mr. Jack W. Isemann is Deputy Director of Information, formerly the Deputy Director of the Executive Information System and is the first Chairman of the Washington Interagency Telecommunications Users' Group. Jack is responsible for the acquisition of our PABX and he is on my far left.

Mr. Raymond J. Garvey is Deputy Director in our newly created Security and Support Services. In the previous organization, Mr. Garvey was responsible for the telecommunications function and the initial work on the acquisition of a PABX. Ray is on my far right.

Mr. Chairman, my colleagues and I are pleased to be here today to participate in the hearings of the Legislative Branch Subcommittee of the Appropriations Committee, House of Representatives, on the important subject of Telecommunications.

With your permission, I would like to read a short prepared statement to introduce our remarks.

STATEMENT OF MR. KENNICKELL

Advances in information technologies concerned with the generation, telecommunication, storage, retrieval, processing, and display of information stand to change the Government Printing Office, and the way in which we view ourselves and conduct our affairs.

Recognizing this, we have established an Office of Information Resources Management within the GPO, responsible for planning, developing, implementing, and maintaining a total GPO Information Resources Management Program, to gain the benefits of a comprehensive Voice and Data Telecommunications System, a GPO-wide Office Automation System, and the recently developed Executive Information System, integrated with our previous activities involving the handling of data.

We do not view our Telecommunications Program as something isolated, but as an integral part of our overall Information Resources Management Program, and also as a program which must interface and work with the rest of the Legislative Branch, other Government Agencies, and Industry.

Like most agencies, the Government Printing Office has recognized the increasingly significant role that telecommunications will play in future operations.

However, in some respects, telecommunications has a special place in the Government Printing Office, because printing is but one aspect of the total problem of gathering, processing, and disseminating information—a process which has undergone continuous change, driven by advances in technology, since the invention of moveable type.

In some instances, the GPO has been in the forefront of this change, as in the development of the first practical electronic photocomposition machine in the GPO; the Linotron 1010.

Now the GPO is faced with the impact of a revolution across the entire spectrum of information technologies, with telecommunica-

tions—particularly high speed, reliable, and secure data communications fast becoming a mandatory requirement.

Before closing, I would like to make two observations.

First, the GPO is currently in the testing phase of a fiber optic communications link between the Senate and House computer systems and the GPO text-editing systems.

This link should become operational in the next few months; and, in addition to other advantages, will provide easier and faster access of GPO data bases by both Houses of the Congress.

Second, GPO's interest in telecommunications and in effectively interfacing with systems of other agencies is of long standing.

In 1984, the GSA, then responsible for a core system known as the Washington Interagency Telecommunications System, formed the Washington Interagency Telecommunications Users' Group (WITS) to provide agencies with a forum whereby their views and concerns could be made known to the GSA.

One of our own employees, Jack Isemann, served as the first Chairman of the WITS Users' Group.

In summary, GPO expects to become more dependent on adequate telecommunications. We have a big stake in having a system which is highly compatible with other systems—particularly with those systems adopted by the Congress.

We have no particular desire to "go it alone" or to develop an independent system.

Thank you for the opportunity to present these views.

TELEPHONE SERVICES

Mr. FAZIO. Thank you, Ralph.

We will be hearing more about the WITS system when the GSA testifies later today.

We have understood that you use GSA for your telephone services in general.

Mr. KENNICKELL. Yes.

Mr. FAZIO. So, you made a decision not to contract with C&P, or AT&T or any other vendors?

Mr. KENNICKELL. We have not gone out yet, sir.

Mr. FAZIO. But in the current set up that was your decision?

Mr. ISEMANN. In the current set up, Mr. Fazio, we are staying with the existing Centrex and C&P through GSA.

Mr. FAZIO. Does the local telephone company historically work with GSA?

Mr. KENNICKELL. Yes, that is correct.

Mr. FAZIO. What is the size of your telephone network?

Mr. GARVEY. Mr. Fazio we have 1,500 lines and 2,000 instruments in our Central Office. In our regional offices we have 330 lines and 360 instruments, giving us a total of 1,830 lines and 2,360 instruments.

Mr. FAZIO. Do you obtain that information from GSA?

Mr. GARVEY. We maintain our own records.

GPO TELECOMMUNICATIONS GROUP

Mr. FAZIO. What is the size of your staff that handles telephone management?

Mr. GARVEY. We have seven employees in the new organization.

Mr. FAZIO. Tell us about the group you mentioned that was created.

Mr. GARVEY. Yes, the Telecommunications Group which has a group chief and under him would be an analyst, a telecommunications specialist and four clerical people.

Mr. FAZIO. Do you have operational staff or are you managing the relationships that you have with GSA and C&P that provide that kind of skill?

Mr. GARVEY. They more or less manage the relationship with GSA and C&P.

Mr. FAZIO. You don't have anyone on-site who handles a wiring problem or something like that?

Mr. GARVEY. No, sir.

Mr. FAZIO. Under your new set-up, do you envision moving in that direction? What do you hope to get out of the new system which is under consideration?

Mr. KENNICKELL. Sir, we are not sure right now.

We are not sure what talent we will have to have internally. We have not gone out on the street with it.

Jack, do you have any particular thoughts on it?

Mr. ISEMANN. Yes, sir, I do.

One of Mr. Pluto's better people is a data communications specialist and he is very good at making one machine talk to another.

Since we see a PABX as essentially a computer, we think we can do telecommunications in the future with our existing personnel.

There will be training requirements but we have no reason to doubt we cannot do it with our on-board people.

Mr. FAZIO. Will you be developing the telecommunication staff or will you continue to contract for those services?

Mr. ISEMANN. Between now and when we have gone with the PABX we will rely on GSA and existing vendor common carriers. When we go with a PABX, we think we can develop the training and skills in-house or have it done for us. We can maintain the PABX, with the exception of the vendor-manufacturer responsibilities, with existing people.

Mr. FAZIO. There are several questions concerning telephone costs, and your new organization that I would like answered for the record.

[The questions and responses follow:]

TELEPHONE COSTS

Question. What are the major telephone cost items and the costs for each?

Response. For fiscal years 1986 and 1987 the budgeted costs are $1,941,000 and $2,277,900, respectively. These costs consist of:

	Fiscal year—	
	1986	1987
GSA (FTS long distance)	$874,000	$1,110,300
GSA local service for Washington, DC and regional offices	878,000	959,800
VA (mailgram usage)	21,000	22,800
C&P Laurel warehouse	55,000	60,800
AT&T—Information Systems	84,000	92,500
Sprint—long distrance	29,000	31,700
	1,941,000	2,277,900

Question. Please provide organizational, staffing and cost information for the organizations involved in ordering telephone equipment and facilities.

Response. Under the new organization, both external and internal communications, voice and data, are placed in a single staff reporting to the Director of the newly created Office of Information Resources Management.

The Telecommunications Group consists of 7 technical and clerical employees, and reports to the Deputy Director for Information, who reports to the Director of Information Resources Management. Equipment repair is obtained through contractual agreement.

Total budgeted costs for telephone service for fiscal years 1986 and 1987 are $2,268,000 and $2,817,200, respectively. They consist of:

	Fiscal year—	
	1986	1987
Personnel compensation & benefits	$255,600	$254,900
Telephone & telegraph	1,941,000	2,277,900
Maintenance	46,000	47,600
Materials	22,000	30,000
Depreciation	2,000	[1] 204,000
Other expenses	1,400	2,800
	2,268,000	2,817,200

[1] Includes $200,000 for 6 months depreciation expense on planned PABX.

Question. Provide detailed organizational, staffing and cost information of the GPO Data Center.

Response. GPO's Computer Center is now part of a new organization, Information Resources Management, which consists of 162 employees. Actual operation of the GPO mainframe computer is the responsibility of the Data Center Division which consists of 48 employees. Systems analysis and programming functions are accomplished by the Application Systems Analysis and Programming Division which consists of 69 employees. Both of these Divisions report to the Deputy Director for Applications and Operations, who reports to the Director, Information Resources Management—who reports to the Assistant Public Printer for Administration.

Voice and data telecommunications are the responsibility of the Telecommunications Group which consists of 7 employees. Telecommunications is one of four Groups that report to the Deputy Director for Information, who reports to the Director, Information Resources Management.

The budgeted costs for the Office of Information Resources Management are $11,711,300 for fiscal year 1986, and $12,951,700 for fiscal year 1987, detailed below.

	Staffing	Budget, fiscal year—	
		1986	1987
Office of the Director	7	$813,000	$810,200
Assistant Director for Technical Support	13	1,029,500	1,001,400
Deputy Director for Applications and Operations:			
Application Systems Analysis and Programming Division	69	2,587,800	2,726,100
Data Center Division:			
Production Control Branch	21	734,700	695,800
Computer Operations Branch	27	2,778,700	3,508,500
Deputy Director for Information:			
Data Base Management Group	3	117,000	117,000
Telecommunications Group	7	2,766,000	3,359,200
Production Information Management Group	9	424,000	342,000
Information and Office Automation Group	6	460,600	391,500
	162	11,711,300	12,951,700

PROCUREMENT OF SERVICES

Mr. FAZIO. Does your Computer Center procure telephone or data communications services or is it procured through one central office, including all the entities within GPO?

Mr. GARVEY. Our Computer Center doesn't procure anything on its own.

The Telecommunications Group procures all lines whether they are voice or data.

Mr. FAZIO. Is that the result of this recent reorganization, or was that always the case?

Ms. GARDNER. Even before the reorganization, all outside lines were procured by the Telecommunications Group.

Mr. FAZIO. Do you make use of the congressional cable system for data communications?

Mr. PLUTO. Currently, GPO does not use any services available with the congressional cable system. We have made studies during the feasibility stage wherein use of the system was explored; however, no specific applications have been implemented.

FIBER OPTIC LINK

Mr. FAZIO. Do you think there will be a way in which we can communicate data with other agencies in a faster way?

Mr. PLUTO. We are currently testing an optical fiber link between GPO and the House and Senate ATEX systems.

We have successfully transmitted data on this fiber optic link between these respective areas.

Mr. FAZIO. As an experiment?

Mr. PLUTO. Yes, sir. We expect to go operational within a couple of months.

Mr. FAZIO. Really?

Mr. PLUTO. Yes, sir. Currently, data is hand carried, on magnetic tapes to the House for the Congressional Record Index. We expect to transmit that type of data in the future over that fiber optic link.

Mr. FAZIO. How did that decision come about?

Mr. KENNICKELL. The Joint Committee on Printing made that decision.

Mr. FAZIO. The Joint Committee mandated that?

Mr. KENNICKELL. Yes, sir. They took a leadership role in that one and indicated there was a need for it and we have been doing it for about a year now.

Mr. FAZIO. So, the Clerk of the House, in this sense, is the depository and the communication link?

Mr. KENNICKELL. That is right.

What the House receives are unedited tapes, that come with a little disclaimer on the front that says, "this tape may contain errors".

Mr. FAZIO. Will that be on-line soon?

Mr. PLUTO. Yes, sir.

Mr. FAZIO. What will the implications be for the users on the Hill? Can you give us some understanding in terms of job changes?

Mr. PLUTO. In terms of data, that could be transmitted—this would be a two-way transmission of data from the Hill to GPO and vice-versa.

The production data, raw data tapes for the Congressional Record and Record Index could be transmitted by that link.

However, it will be necessary to tie the digital equipment that is currently in our Electronic Photocomposition Division to our mainframe; likewise, a link from the House and Senate to their mainframe.

Another possibility is to use 19.2 kilobits per second transmission from computer to computer between GPO, the House and the Senate.

Mr. FAZIO. You say "possibility". You haven't made these decisions yet?

Mr. PLUTO. No, sir.

Mr. FAZIO. Who will make them?

COORDINATION OF NEEDS

Mr. PLUTO. In determining the coordinated needs of the House and the Senate and the need to tie the computer systems in, I would envision that the House Information Systems, the computer center personnel, the Library of Congress, our technical data processing types—they would get together and determine the need and feasibility and cost of doing it.

Mr. FAZIO. In other words, this is an ad hoc group doing the reasonable thing at the lowest possible level, so it is a technical and not a political decision?

Mr. PLUTO. There has been some expression between these respective organizations in the past saying we ought to explore that.

Mr. FAZIO. Mr. Lombard reminds me that we directed something similar in our report two years ago.

By the way, we welcome Mr. Myers. Glad to have you, John.

Mr. MYERS. I am sorry I was not able to be here this morning.

Mr. FAZIO. It has been interesting; but we enjoy having you here now, and we would just ask you to interject at any time.

Bill.

Mr. THOMAS. The policy decision to make that connection over a human connection of running the tapes back and forth, and the question of having the money so you get to where you own computers directly and you are digitizing back into the mainframe, is, I think, one of time involvement consideration and other factors that you could have someone come before us and give us the ups and downs.

But I assume the technical people are determining now, one, which one will be the most error-free, and eliminate the greatest

number of people from the loop and provide a product on a two-way basis.

Aren't those the assumptions you are going through in determining which direction you are going to go; and if not, what other considerations are being examined in determining the direction you are going to go in this hook up if it is just a couple of months away?

Mr. PLUTO. This study was conducted by our electronic photocompositionists who operate the digital equipment.

Mr. THOMAS. Yes.

Mr. PLUTO. The VAX type equipment, PDP 11's. That is a different organization apart from the Data Center organization with different functions and different responsibilities.

Mr. THOMAS. Yes.

Mr. PLUTO. But the Data Center is looking at it from the standpoint of going computer to computer with each of the respective areas for transmission of data bases from GPO to the House and Senate and Library of Congress and accessing information from the other respective areas for GPO use.

We currently have, for example, the Senate tied into our mainframe with a dedicated line. The Congressional Research Service is tied in using protocol converters.

Both of them have access, on a test basis, to the Congressional Record Index on-line system developed by the Government Printing Office.

The Senate and the Congressional Research Service also have capability to tie in to what we call our Publications Reference File, which is bibliographic information on sales documents that the Superintendent of Documents has.

Mr. THOMAS. I want to separate this general desire to plug into each other's data bases, in particular, information you have for general information purposes and understanding.

I want to focus on the folks who run the machine right now, who used to be linotypers and whatever they are now with their production of the Congressional Record.

For example, you were talking about the fiber optic connection to replace individuals moving hard copy from one location to another.

This would be a singular operation separate from the desire to plug into the broad data base that each other have.

Where is the decision being made in terms of running it completely separate or part of that larger communication structure?

Is that the decision that has not been made?

Mr. PLUTO. That decision has not been made.

Mr. THOMAS. There are advantages to plug it into the larger data structure; I understand that.

But my concern would be that narrow, direct link between the folks who produce the information and those of you who put it on a permanent hard copy.

Are they now separate?

Mr. PLUTO. They are separate.

Mr. THOMAS. The question is whether you replace people with fiber optic cable or you take that portion of your operation and integrate it with all the other data collecting procedure and transmission that you have.

Is that the basic question that you are wrestling with? That is a policy question, of course.

Mr. PLUTO. That is organizationally a—

Mr. THOMAS. Am I making sense to you in terms of the question I am asking?

Mr. FAZIO. You are making that point very well, Mr. Thomas.

Mr. THOMAS. I thought you might want to go in this direction.

DISPLACEMENT OF GPO EMPLOYEES

Mr. FAZIO. Keep it up.

Mr. KENNICKELL. The integration of our typesetters—

Mr. THOMAS. Quote, unquote.

Mr. KENNICKELL. I will use that in the broader sense. The integration of our typesetters with our data processor through this fiber optic cable, and your concern is if that is going to displace people?

Mr. THOMAS. No, no. That is always a concern.

Mr. KENNICKELL. We don't see anyone displaced by utilization of the fiber optic.

Mr. THOMAS. Don't assume that is the direction I want to go down.

Mr. KENNICKELL. All right.

Mr. THOMAS. I am concerned more about the mechanics and the organizational structure and you have a decision that you need to make.

Mr. KENNICKELL. In GPO?

Mr. THOMAS. Yes, in GPO.

You formerly had the materials produced physically brought over to the quote, unquote, "type setters" who produced the material.

If you go with the fiber optic link, you have the capability then of not only creating—maintaining that channel that you have which is now a physical one, but you can link it up then to the entire data processing system.

And, in essence, other folks could look over their shoulder while they are producing that information from a data base.

Is that the decision that you are making, whether to make them part of the overall system or to keep them separate on the basis of producing the Record, etc.?

Mr. KENNICKELL. That is a whole different area there.

Where I think we are heading now, if I understand correctly, is that the fiber optic cable will enable the GPO to make better use of the original capture of key strokes on the Hill.

You can capture—from this steno machine—you could theoretically capture these strokes, feed it to GPO on the fiber optic cable, go directly into our video processors. Then a few minutes later I can have an aluminum plate already paginated with the entire hearing on it.

Now conceivably, if every bit of data was captured at the original source and it was a guaranteed coded data base which is not that difficult to do, you are probably looking at the displacement of about 300 people.

Mr. THOMAS. All right.

Mr. FAZIO. The impact on jobs is an essential consideration.

Mr. KENNICKELL. The essential front end work, the printing side that people normally associate with the key board operators and the proofing and you get into camera and plate making and strippers and all the other—

Mr. THOMAS. Right.

Mr. KENNICKELL. That is what you are talking about impacting.

Mr. THOMAS. That wasn't the direction of my question. Maybe somebody else asked about jobs.

Mr. FAZIO. Yes, that is right, I asked about jobs.

Mr. THOMAS. That is okay and that is useful, but it is possible to run that system almost as a dedicated line for the production of those materials and that is all that is transmitted then you could have a separate data structure for all the other materials.

Are you considering keeping it separate, or are you going to integrate it into the entire data base that GPO runs and shares with others over your normal computer hook-up?

Does that make sense?

Mr. ISEMANN. Mr. Thomas, if I may, GPO has never really decided as of this stage, because the fiber optic cable is still being tested. We have not decided what the logical extension of it will be.

But you are correct in saying that it can do a whole range of things and GPO would certainly pursue those things that it could do.

Mr. THOMAS. If it was going to be a couple months, I would be concerned that you have this link up.

It is a nice single use, but if the expense is such that you could have other functions perform with it, you could.

Mr. ISEMANN. Yes, sir.

Mr. KENNICKELL. Absolutely.

Mr. THOMAS. You buy the car and read the manual to see what it does, or are you holding up the decision because you are exploring what else you could do with it?

Where are we?

Mr. KENNICKELL. No, sir. We are not holding up anything. I think the cable was $65,000 to install. It is a relatively new technology for us and what we are doing now is just sort of bringing it up slowly.

We are speculating on what it is going to be when it grows up. I know it is going to be something incredible because of all the information created on the Hill and our needs to interact and manipulate—I shouldn't say it that way—to deal with that information, is going to grow.

I see it coming right off that cable. Absolutely.

Mr. THOMAS. Thank you, Mr. Chairman.

DUPLICATION OF EFFORT

Mr. FAZIO. You are right on target here, Mr. Thomas.

That is the exact reason that this hearing is being held. We want to provide an overview on specific tasks and certain requirements relating to telecommunications.

Many individuals are not necessarily in a position to completely understand all the details.

We are particularly concerned about ways by which we can avoid duplication of effort. For instance, we assume HIS will get this material directly from you and avoid having to develop their own version of the Congressional Record. This might be one advancement toward cost savings. So, I appreciate the line of questioning.

This might be a good point at which to insert questions to be answered for the record.

[The questions and responses follows:]

QUESTIONS FOR THE RECORD

Question. What telecommunications (data communciations) capabilities does the GPO Computer Center have or acquire?

Response. GPO has dedicated circuits and control units within the Central Office to support approximately 700 terminals. GPO also has a nation-wide network of dedicated and dial-up circuits provided by common carriers to provide access to GPO's on-line application processing systems and remote job entry services, for GPO and other Government Agencies.

Question. Please provide for the record, the amount of data telecommunicated in a normal busy month (e.g., characters of data), the data communication rate (e.g., bits per second), the media utilized (e.g., local cable, or commercial means) and the destination (e.g., city or agency).

Response. GPO is currently using dedicated lines for on-line applications and remote job entry. These lines operate at 4800, 7200, and 9600 BAUD. Dial-up lines used for the same purpose operate at 300, 1200, 2400, and 4800 BAUD. All dial-up and dedicated lines outside of the Central Office use commercial circuits. Within the Central Office, dedicated lines are used, and consist of standard four-wire, full-duplex, shielded telephone cables.

The network handles 3.5 billion characters per month to and from the following destinations:

Central Office, Laurel Warehouse, Joint Committee on Printing, Nuclear Regulatory Commission, Washington Navy Yard, Printing Industries of America, U.S. Senate Library, Boston RPPO, Chicago RPPO, Denver RPPO, Newport News RPPO, Philadelphia RPPO, Seattle RPPO, Charleston Satellite RPPO, Department of the Army, Department of the Air Force, Department of Labor, Department of Interior, Department of Energy, Health Care Financing, Office of Personnel Management, U.S. Consumer Product Safety Commission, Union Center Plaza, Springbelt Warehouse, Internal Revenue Service, Maryland Swtich/Visa, Maryland National Bank, U.S. Postal Service, Atlanta RPPO, Columbus RPPO, Dallas RPPO, Los Angeles RPPO, New York RPPO, San Franscisco RPPO, St. Louis RPPO, San Antonio Satellite RPPO, Department of the Navy, Department of Agriculture, Department of Commerce, Department of Treasury, Bureau of Census, Housing and Urban Development, and Veterans Administration.

REGIONAL OFFICES NETWORK

Mr. FAZIO. Have you reviewed the possible routes that Congress might take with GPO and the other legislative agencies, to share data between geographical locations, not just on the Hill, but around the country?

I know you have a regional network. You talked about 13 centers you communicate with. I am sure most of them are in Federal regional centers.

What efforts have been made to share the burden and some of the benefits?

Mr. KENNICKELL. Mr. Chairman, the regional printing procurement offices are where they buy the bulk of the work from the private sector. Do you have any knowledge of that?

Ms. GARDNER. We have a dedicated line coming from each of the regional offices into the Computer Center here in Washington.

It is a 4800 baud line. We have it fairly well tied up just with transmitting data to update the central files here in Washington with the information pertaining to procurements they are making out there.

ACCESS BY AGENCIES

But by the same token, we have made access to those central files available to interested customer agencies to check the status of particular procurements.

So, if the Army wants to tie in and find out what the status is of their printing requisition, they can do so.

Mr. FAZIO. Have they done that?

Ms. GARDNER. Yes, they have.

I believe we have 20 agencies using it now.

Mr. FAZIO. Most of the executive agencies do their printing procurement through you?

Ms. GARDNER. Yes, sir.

Mr. FAZIO. Is there any limit on what they could accomplish?

Ms. GARDNER. First of all, they can view only—they cannot change anything. They can just look.

Mr. FAZIO. A monitoring function?

Ms. GARDNER. Yes. Certainly the front end on the computer in Washington has some limitations. Exactly what that is, Ray, I don't know.

Mr. PLUTO. They are currently restricted to accessing status information on existing procurements.

Mr. FAZIO. In other words, there is no telephone conversation now. They have immediate understanding of where their work stands in the process.

If they have a problem, they get on the phone.

Mr. KENNICKELL. That is right. That is what happens.

Mr. PLUTO. For those jobs being procured, yes, they have the opportunity to check the status.

Mr. FAZIO. As the jobs are procured are they immediately placed into the system?

Ms. GARDNER. As soon as we receive the requisition, it goes into the system.

Mr. FAZIO. So, if they have not made an ultimate decision to go forward with the procurement——

Ms. GARDNER. They can determine if it is on the street for bids. If it is not out for bids, we will get a call asking about it.

Mr. THOMAS. In terms of procedures, do they have a telephone they plug into and your mainframe information comes up on their CRT and they can only access a certain portion of it based on the code that is established?

Mr. PLUTO. That is correct.

PAYMENT FOR ACCESS

Mr. THOMAS. Who pays for that time? Do they pay for the time in accessing the computer or is that something that you have for them?

Ms. GARDNER. They dial a local number. I don't know if we charge connect time or not.

Mr. PLUTO. No. The Data Center charges the Printing Procurement Department, and whether they charge the agencies, I don't know.

Ms. GARDNER. They do not.

Mr. KENNICKELL. Not as a separate charge, but it is recovered in the surcharge the GPO places on the executive agency's work when we buy it in the private sector.

Mr. THOMAS. So, the access cost of accessing the computer is part of the cost that you transmit to them?

Ms. GARDNER. Part of it.

Mr. THOMAS. As a general overhead or a specified expense so they could review what it was costing them to peak?

Mr. KENNICKELL. It would be a general overhead expense, not a specified expense.

It would be too difficult to break that out on a unit by unit basis.

Mr. THOMAS. In a sense of the dedicated line to the information, does the Senate pay for that? Are they billed in any way? What is the cost arrangement?

ACCESS TO PUBLICATIONS REFERENCE FILE (PRF)

Mr. PLUTO. The Superintendent of Documents has picked up the charges for the PRF application.

The test of the Congressional Record was on a no-charge basis, both for the Congressional Research Service as well as the Senate Library.

Mr. THOMAS. Okay. You noted that.

Mr. FAZIO. Yes, we are interested in the cost, too.

Mr. PLUTO. It is very minimal for the amount of testing and the uses that they have on the system. It is less than $100 a month. Perhaps it would cost more to bill for those charges than the actual charges.

Mr. FAZIO. All right.

Mr. LEWIS. Bill is asking in the sense of, as we look at these systems across the whole system now, he is asking the question relative to the cow.

It is one thing to buy the cow. It is next a matter for consideration of feeding it.

If you multiply the numbers, those units add up. It is 800 phone lines, 800 free lines access. People tend to want to call.

Because the reason I have an 800 number is because I want to sell my product because they call. If a person abuses the use of that line, that can be a problem.

I guess what Mr. Thomas is asking is, are we measuring at all the cost of use of those lines and what that portends for the future?

Should there be a charging process? I don't know the answer, but it is an interesting question.

Mr. FAZIO. At some point the process of communicating will be much more comprehensive so Congress will pay a great deal more attention to those costs. It is important to begin making policy, so that when proliferation and more communication takes place, that there are answers available.

There are a number of questions that I want to place in the record.

[The questions and responses follow:]

QUESTIONS FOR THE RECORD

Question. What are the total costs associated with data communications and telephone services for the GPO?

Response. The fiscal years 1986 and 1987 budgeted amounts for voice and data are $2,439,000 and $2,819,900, respectively. Actual mid-year 1986 expenses were 49 percent of the budget amount. If this trend continues, the total cost for all of fiscal year 1986 will be approximately $2,390,000.

Question. Please provide for the record a detailed breakout of all GPO costs associated with the provision of telecommunications.

Response. *The detailed breakout of GPO costs associated with telecommunications is:*

	Fiscal year—	
	1986	1987
GSA (FTS long distance)	$874,000	$1,110,300
GSA local service for Washington, DC and regional offices	878,000	959,800
VA (mailgram usage)	21,000	22,800
C&P Laurel warehouse	55,000	60,800
AT&T Information Systems	84,000	92,500
Sprint long distance	29,000	31,700
C&P data lines	103,000	112,100
Dedicated circuits for regional offices	203,000	220,900
Western Union TWX teletype access lines	192,000	209,000
Total	2,439,000	2,819,900

Question. How could a common system be structured to meet your needs?

Response. A common system could be structured by having a strategically located PABX, connected by appropriate T-carriers or by optical cable, to the organizations being served, The PABX selected would have to have built-in, all of the required capabilities, such as least-cost routing, call forwarding, etc.

Question. Should a common system encompass both telephone and data communications?

Response. In our opinion, this should be a mandatory requirement, considering the growing importance of data communications.

Question. How could a common system be operated and managed?

Reponse. We recommend that the organization where the PABX is located be made responsible for system operation, with an oversight committee consisting of representatives from the organizations being served.

Question. What economies, if any, do you consider possible by a consolidated system?

Reponse. A consolidated system would probably result in lower initial acquisition cost and reduction in personnel required to operate and maintain the PABX.

Question. Would a common system adversely impact your current operations?

Reponse. This depends on the equipment selected, how it is operated and maintained, and how the costs are apportioned. In addition, GPO's mission, goals and objectives—as they relate to the purchase of printing, the manufacture of printed products, and the distribution of documents—may call for a different PABX and telecommunications program than that of other Legislative Agencies and the Congress.

Question. What would be your views on a method for achieving and managing a cost-effective consolidated telecommunications capability for the Congress and its agencies?

Reponse. In our opinion, a consultant or consulting firm should be hired and tasked with the responsibility of devising the best method for acquiring and managing a consolidated system; and also for advising whether a consolidated system is the best alternative.

SHARING OF DATA

Mr. FAZIO. Tell us whether it would be useful to explore the possible sharing of data communications ability with the other legislative agencies?

What is your general attitude toward further utilization of these channels?

I am talking about nationally as well as on the Hill.

Mr. KENNICKELL. I look forward to that. I welcome that.

In fact, I could designate someone sitting at this table to be the liaison, Jack.

Mr. FAZIO. Sounds like we have a liaison.

Mr. ISEMANN. Yes, sir.

Mr. FAZIO. Ed reminds me we should not proceed too quickly. We discussed this with Mr. Welch at the Library of Congress. We are not talking about some sharing of data. We are talking sharing responsibility for very important communicating functions, use of the telephone systems which are second nature to everyone.

It means power sharing, as they say; some management responsibility that gets a little diffused. You may be waiting in line with other agencies for someone to service equipment as Bill Welch conceives of it. But you might be willing to venture into that situation.

Do you feel we can count on GPO for cooperative efforts?

Mr. KENNICKELL. Mr. Chairman, you can certainly count on us to participate and cooperate. I look forward to it.

Our concern is making sure that we are indeed compatible and we are doing the right thing.

We are all in this together, and the more we can benefit from each other's knowledge and individual experiences, the better off we will be.

BENEFITS OF NEW SYSTEM

Mr. FAZIO. I would like to ask you a few questions about the new system that you are considering.

What do you hope you get out of it that you don't have now?

Mr. ISEMANN. Mr. Chairman, what we are hoping, first of all, is to get cost reductions over our existing GSA Centrex system.

Second, we want to look for a way of integrating both voice and data.

We, like many other Federal agencies, realize that data requirements are going to grow significantly faster in the future than what voice requirements are.

Then we are looking for one system which will handle both economically so that we can reduce costs and do all those things that we expect will be required of us in the near future.

Mr. FAZIO. Are you going to move simultaneously or are you proceding first with voice?

Mr. ISEMANN. We are looking at a voice data integrated switch, one switch that will handle both.

COST OF NEW SYSTEM

Mr. FAZIO. What do you estimate the cost of this system to be?

Mr. ISEMANN. About $2 million.

Mr. FAZIO. That will be a one-time procurement cost?

Mr. ISEMANN. Yes, sir.

Mr. FAZIO. What is your annual operation and maintenance cost?

Mr. ISEMANN. Well, depreciation would be the large share of that, sir, and that would be about $200,000 a year.

We would depreciate that over ten years. The annual operating cost we would hope we could incorporate them within our existing telecommunications expense so the switch would pay for itself in a short period of time.

Mr. FAZIO. Will you be developing the staffing to keep costs under control or will you be contracting for O&M assistance on top of the depreciation?

Mr. ISEMANN. No, sir.

Right now we propose to do the PABX installation and acquisition all the way up through transferring it to the government with on-board GPO personnel.

LOCATION OF SWITCH

Mr. FAZIO. Where are you going to place the switches and what kind of construction will be required?

Mr. ISEMANN. Well, the switch is—more than anything else, it is a computer, so it will need an environmentally protected room.

We estimate 750 square feet with environmental controls at the GPO Central Office would be—

Mr. FAZIO. Do you have available space at GPO you will use for that?

Mr. KENNICKELL. We would be able to use available space and customize it for that.

Mr. FAZIO. What kind of construction costs do you estimate are involved?

Those costs are sometimes left out of the equation.

Mr. ISEMANN. We have not dealt with that, sir. We could work up something and supply it for the record or some of the other people could hazard an estimate.

We would certainly not go overboard with it. But it would have to be something that met the needs of the switch.

Mr. FAZIO. We would appreciate an estimate for the record.

It is important to think in terms of total costs when procurement plans are presented.

[The estimate follows:]

Construction of a room, approximately 750 square feet, with environmental controls, would be required. Estimated cost is $52,500, which is about $70 per square foot. However, this work could be part of the overall procurement.

CLOSING REMARKS TO GPO

Mr. FAZIO. Any questions from any of my colleagues before we thank the GPO for their testimony?

If not, Ralph, we appreciate you and your staff coming over, and we look forward to your responses in the record.

There is much to be gained from GPO and other agencies if we creatively utilize the data that is being developed.

Duplication can be avoided if work is taken from the source and directed toward the users in the most timely way, and we should be moving with cost-benefits in mind.

You are one of those agencies that is integral to the possibility of a joint telecommunication system and how it can be accomplished.

We appreciate your testimony.

Mr. KENNICKELL. Thank you, sir.

MONDAY, APRIL 28, 1986.

GENERAL ACCOUNTING OFFICE

WITNESSES

MILTON SOCOLAR, SPECIAL ASSISTANT TO THE COMPTROLLER GENERAL

FRANK FEE, ASSISTANT COMPTROLLER GENERAL FOR OPERATIONS

RICHARD BROWN, CONTROLLER

JACK WHEELER, DIRECTOR, OFFICE OF INFORMATION RESOURCES MANAGEMENT

LEO GRECO, GROUP DIRECTOR—TELECOMMUNICATIONS

Mr. FAZIO. We will now hear from the General Accounting Office. I will provide a little background as the witnesses assemble.

GAO created an Office of Information Resources Management to plan, manage, and operate the agency's information resources. The management of telephone services, however, has remained a function of the Office of General Services and Controller.

The new OIRM office has focused on automated data processing (ADP). The GAO does not have a computer center so ADP services are contracted.

A recent study performed by Touche Ross Company in the amount of $500,000, recommended integration and centralization of GAO ADP function, and data bases. A study in the amount of $100,000 has been contracted to determine the data and telephone communications requirement.

The GAO obtains Washington, D.C. local telephone services through the General Services Administration (GSA), at an approximate annual cost of $1,400,000.

The GAO participated in the Government bulk purchase of telephone equipment. The sum of $2,500,000 has been programmed into the Fiscal Year 1987 budget request to join a intra-agency telephone switch procurement.

GAO plans to include telephone requirements as an option to a Department of Treasury telephone switch procurement.

We welcome Milton Socolar, Special Assistant to the Comptroller General, and Frank Fee, Assistant Comptroller General for Operations, and others who are accompanying you today. It is nice to see you all.

At this point, if you want to put your remarks in the record and make general comments, we will proceed with the questions.

SUMMARY STATEMENT

Mr. SOCOLAR. I do have a statement, Mr. Chairman, that I would like to introduce into the record.

Perhaps I could summarize that statement.

It is a pleasure for us to be here today to talk to you about where GAO is and where it is headed with regard to its telecommunications needs.

Basically, GAO today and up until now has been a passive user of telecommunication services. Fundamentally, we have dealt with the phone companies and through GSA, but it is clear that with the divestiture and rapid advance in technologies that GAO is going to have to become more actively involved in managing its telecommunications needs.

Basically, GAO is decentralized. We have about 42 percent of our staff in the Washington area with 70 audit sites throughout the metropolitan area.

We have 16 regional offices, an office in Germany, and we have 24 sub-offices.

Right now our telecommunication needs principally focus on voice telecommunications, but that is rapidly changing.

In five years or so we expect that anywhere from 50 to 60 percent of our total telecommunication needs will be for data transmission, moving from a dedicated word processing environment to the shared use of intelligent work stations, intermediate processors and mainframes.

Mr. FAZIO. You are doing a good deal of teleconferencing, too, are you not?

Mr. SOCOLAR. Yes.

Mr. BROWN. A fair amount, yes.

Mr. SOCOLAR. Our administrative needs currently require heavy data communication. GAO has come to the realization that we are going to have to be managing more actively.

As you mentioned in your opening statement, we have established an Office of Information Resources Management (OIRM) to take care of our ADP and telecommunication planning needs.

We have a staff of about 60 and there are 2 specialists in that office dedicated to telecommunications planning functions.

This telecommunications group is managed by Mr. Greco. He is the group director, and I might point out that Mr. Jack Wheeler is director of OIRM.

We have entered into two contracts to help us plan for the telecommunications future. We have a number of pilot projects underway to assess alternative approaches to office automation, and to learn how shared resource networks operate. We are also establishing a new data network to support our financial management system.

[The statement of Milton J. Socolar follows:]

UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548

FOR RELEASE ON DELIVERY
EXPECTED AT 2:00 PM
APRIL 28, 1986

STATEMENT OF

MILTON J. SOCOLAR

SPECIAL ASSISTANT TO THE COMPTROLLER GENERAL

BEFORE THE

LEGISLATIVE SUBCOMMITTEE OF THE APPROPRIATIONS COMMITTEE

UNITED STATES HOUSE OF REPRESENTATIVES

ON

THE STATUS OF TELECOMMUNICATIONS EFFORTS

IN THE GENERAL ACCOUNTING OFFICE

Mr. Chairman and members of the Committee, we appreciate the opportunity to be here today to discuss the status of GAO's telecommunications efforts and some of the issues that need to be resolved in addressing this vital function. In laying out GAO's internal and external telecommunications environment I would like to give you an idea of the pressures on GAO, where we are, and where we are headed.

BACKGROUND

Divestiture and deregulation of the telecommunications industry has had a profound impact on the manner in which the federal government, including GAO, procures and manages its telecommunications. The Bell System functioned as a systems integrator. Users inserted money at one end and received services out the other. Only one organization designed, built, and managed networks and developed the kinds of terminal equipment to be used on the networks. User requirements were defined by this same organization. At the same time the existence of a single dominant entity simplified the process of meeting federal telecommunication needs.

Now, the same decisions that previously were made within the Bell System and largely within GSA for government users have to be made by individual telecommunications managers in every government agency. Our task in GAO is to transition from a passive management posture where all decisions were made for us to a more active management posture where we will make and be accountable for all of the decisions. In order to maximize cost and benefit advantages available to us, we now must acquire an internal capability to deal with a full range of telecommunications issues we have never before had to worry about.

INTERNAL ENVIRONMENT

As you know, GAO has broad responsibilities for the audit and evaluation of Executive Branch agencies and programs. To best meet these responsibilities, we have a decentralized organization with a major portion of our auditing staff located at or near major executive agency locations where programs are being carried out. We face three broad geographic concerns that complicate our telecommunications needs. First is our main headquarters building that houses about 42 percent of our staff. Second, we have audit sites physically located at over 70 different executive agencies and offices in and around Washington, D.C. And, third, we have an office in Germany and 17 major regional offices as well as 24 smaller sub-offices scattered across the country.

Our voice and data needs fall into two categories: audit support and administrative support. Audit support is characterized by light data and heavy voice usage while administrative support is characterized by heavy data and light voice usage. However, our needs are changing and will result in an increasing amount of data usage for both audit and administrative support.

Our communications needs are met in a variety of ways. Telephone service in the regional and sub-location offices is provided by GSA with the exception of our Norfolk office where GSA service is not available. Our telephone service in Washington is also provided by GSA through its consolidated CENTREX system.

The GAO telecommunications budget for 1986 is about $4.17 million. Local service costs about $2.56 million, $1.01 million for FTS, $455,000 for equipment, $66,000 for toll calls, and $33,000 for other costs. About $2.5 million is for our

Washington locations and $1.6 million for our regional, overseas, and sub-locations. These costs are generally for voice communications through 4,200 telephone lines in Washington locations, and 2,400 telephone lines in our remote locations.

We get our data services from a variety of time-sharing and public-network vendors. We do not have firm figures for our data communications costs because some of our dial-up transmissions are made over FTS, and we cannot distinguish between a voice call and a data call from the information on our FTS bills. We have identified access costs for the network vendors at about $200,000 per year.

WHERE IS GAO HEADED

As we are working toward solving our immediate operational problems, we are doing so in consideration of where we believe we should be going in the future.

Presently we are in the first phases of a transition from a voice oriented, passively managed organization to a heavily data oriented, proactively managed organization. We are projecting that within 5 years, 50 to 60 percent of our requirements will be data communications and that there will continue to be a proliferation of options available to meet our telecommunication needs. Several factors are responsible for this trend.

--We are in the process of implementing a transition from Micom wordprocessors to a micro-computer configuration. Over 1500 micro-computers have been distributed throughout GAO, to assist our auditors in accomplishing their mission and to assist in automating our administrative functions. As a result, we have undertaken significant training in the use of these machines. Our professional

staff is becoming more and more proficient in the use of package software--including word processing software. This training effort will continue as new versions of software become available and we begin to network the computers together for maximum benefit.

--We have a continually increasing requirement for interactive data communications between regional offices and computer data bases and organizations in the Washington area to suport both our audit assignment management and administrative operations.

In order to deal effectively with the changing telecommunications environment, we have taken several significant steps.

--We have formed an Office of Information Resources Management, consolidating all ADP and telecommunications activities for the agency. That group is currently staffed with 60 technical and administrative personnel.

--We have formed a Telecommunications Group within the Office of Information Resources Management, and have recently hired a director for telecommunications.

--We have awarded two contracts over the last 3 years to assist us in planning and analyzing our ADP and telecommunications needs in the regions and in Washington.

--We have undertaken pilot projects to help us evaluate the use of micro- and mini-computers in local area network (LAN) environments and we have several ongoing office automation projects dealing with word processing and data analysis.

--Finally, we are developing a new data network to support our financial management system.

EXTERNAL FACTORS IMPACTING ON GAO

We are faced with many problems as a result of divestiture, as I am sure most agencies are. Of immediate concern are the unanticipated rate increases that are occurring. We also must find sufficient funds to purchase telephones in our regional offices before December 1986. Within the next few years all of our locations including Washington, will probably be served by digital PBXs that require electronic telephones which will need to be purchased.

As I stated before, GAO relies heavily on GSA for meeting its voice requirements and GSA is currently involved in several activities which will directly affect GAO in all locations.

Purchase of Telephone Services (POTS)

All GSA Consolidated Telephone System users will have to replace their present leased telephone instruments with purchased equipment. GSA's Purchase of Telephone Service (POTS) contracts provide for procuring high-quality telephone equipment and services at substantial cost savings to the government. GAO has thus far purchased approximately 97 percent of the telephones it uses in the Washington Metro Area. Our field locations are looking into the buying of equipment and services from POTS contracts as they are awarded in their areas.

Aggregated Switch Procurement
(ASP) Program

The General Services Administration, since 1977, has been competitively replacing telephone systems nationwide with new technologically advanced Private Branch Exchange (PBX) Systems. In 1983, GSA made the decision to accelerate this program and called it the Aggregated Switch Procurement (ASP). The New England area was chosen as the ASP pilot which was awarded in March 1985 for a total of 27 systems. As of today, nine (9) systems have been installed, tested, and operationally accepted. The remaining New England systems are scheduled for operation by mid-1986.

GSA is currently evaluating ASP bids for the Kansas City area and is prepared to issue requests for proposals for the New York, Dallas, San Francisco, and Philadelphia areas. GAO has offices in each of these areas and will be impacted by these procurements. All other ASP awards are projected for completion by the end of 1987 and systems made operational by 1990. The requirements analyses for each of our regional offices will have to be updated in order to determine how to best integrate our current activities and future plans with the ASP procurements.

WASHINGTON INTERAGENCY
TELECOMMUNICATIONS SYSTEM (WITS)

The Washington Interagency Telecommunications System is GSA's proposal for upgrading the consolidated government CENTREX in the Washington Metro Area. WITS proposes to replace the voice only system with a technologically advanced system capable of handling both voice and data requirements of the federal community. WITS is expected to serve approximately 150,000 users in over 100 agencies. The concept for WITS is the result of an

interagency task force that convened in early 1980. It is anticipated that the proposal for the Washington system replacement will be released to industry in May 1986, with proposals due in November 1986 and a contract awarded in April 1987.

GAO is currently served by the GSA consolidated CENTREX System. Although the system is satisfactory for our voice needs, we do not believe it will handle our anticipated data requirements. We are not in a position at this time to decide whether to actively participate in the WITS program. Before we can make that decision we need to update a requirements analysis that was made in 1984.

Federal Telecommunications System - 2000

FTS 2000 is a GSA project to replace the current FTS long distance network. GSA publicly announced this project in January 1985. A draft request for proposal was made available for industry and agency comments in October. Presently the RFP is under revision by GSA and the final release to industry is anticipated for late 1986. GSA is projecting a contract award in 1987, with the transition beginning 6 months after award and completely operational by 1990. FTS 2000 will be a completely integrated network capable of handling integrated voice and data, video, and packet switching services (bulk transfer of data at high speeds).

The system, if procured, may require GAO to alter its methods of transmitting data. This, in turn, makes it necessary to analyze our inter-city requirements and how to best satisfy them.

WHERE WE ARE TODAY

Since divestiture, GAO has proceeded carefully in exploring the best possible alternatives available to us in meeting our dynamic telecommunications needs. We have hired two contractors to help us sort out our requirements and explore technical alternatives toward satisfying those requirements. We have explored the possibility of sharing a PBX with the Treasury Department in the GAO building, and have also examined several telecommunications alternatives available through GSA. At this time, we have made no firm decisions about which alternative to implement.

We are presently awaiting the resolution of several telecommunications issues being addressed by the House and the Senate and will factor into our decisions the results of their studies. We have deliberately proceeded slowly in implementing major changes to our telecommunications systems in order to properly consider the impact of such changes on our overall long-range ADP planning as well as on our selection of technical alternatives that will best meet our data and voice telecommunications needs.

GAO is evolving from a voice oriented organization to one where data will likely represent half or more of our future communications needs. We have taken several positive steps to help us make this transition. We have established a telecommunications branch in our Office of Information Resources Management and have recruited two new employees with extensive telecommunications experience. We have conducted some pilot programs to help us evaluate our alternatives and have carefully reviewed requirements as input to our long-range telecommunication planning process. We are now developing a long-range telecommunication plan that will meet our needs.

We recognize, however, that rapid changes in telecommunications have generated a need to update our previous analyses. Our most urgent problem is how to replace our current telephone system in Washington, D.C., with a modern integrated voice and data system. The replacement of the telephone system should be synchronized with our planned Facilities Modernization Program which will include upgrading the power and cable distribution systems over the next 5 to 6 years. We are examining several options, but at this time we have not completed our evaluation nor made a decision as to which alternative will serve us best.

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Mr. Chairman we would be glad to answer any questions you may have.

ORGANIZATIONAL PLACEMENT OF TELECOMMUNICATIONS FUNCTIONS

Mr. FAZIO. Could I interrupt at this point?

Mr. SOCOLAR. Sure.

Mr. FAZIO. I wonder why you kept the Office of General Services and Controller in the loop in the sense that managing telephone services is in the new OIRM?

Mr. SOCOLAR. We are not really keeping them in the loop. We just haven't transferred everything over yet.

Mr. FAZIO. It is in the offing?

Mr. SOCOLAR. We are really very much in the beginning process of organizing our telecommunications functions within OIRM.

Mr. FAZIO. You have not completed the reorganization you envisioned, is that correct?

Mr. SOCOLAR. That is correct.

There are a number of external factors to which we have to respond. I heard mention this morning of the WITS operation of GSA, and the changeover of the Federal telecommunication systems network.

We are going to have to learn to accommodate ourselves to all these changes. We have proceeded carefully. We have explored a PBX set-up with Treasury, but on learning of where the legislative branch is right now, we concluded that we ought to wait to see how things develop before we make any final decisions.

TELECOMMUNICATIONS NEEDS

Mr. FAZIO. You get your service from GSA and the local telephone company?

Mr. SOCOLAR. That is correct.

Mr. FAZIO. In the traditional manner.

Mr. SOCOLAR. Right.

Mr. FAZIO. What is the size of the service that you provide GAO? How many lines and instruments do you have?

Mr. SOCOLAR. We have some 6,600 lines and about 5,700 instruments.

Mr. FAZIO. Has that been a stable situation recently? You have had a level employment base in recent years. Has that been translated into the information systems that they use, as well?

Mr. SOCOLAR. I would think so, yes.

Mr. FAZIO. I have some questions for the record concerning telecommunications cost, organization and staffing.

[The questions and responses follow:]

TELECOMMUNCATIONS COSTS

Question. What is the total estimated cost of telephone service for the GAO in FY 1986? How much is in the FY 1987 budget?

Response. For fiscal year 1986, GAO estimates that telephones services will cost $3,716,000, and for fiscal year 1987 $7,788,000 has been requested. The principal reason for the increase accounts for changes in local telephones service charges in our regional offices, the rental of a PBX for our headquarters building through sharing of another agency's PBX procurement and other increased usages and rates.

Question. What are the major cost items and the costs for each? (Provide a detailed breakout of all costs for the record.)

Response. The dollar figures listed represent telephone service costs.

BOC, Description	Fiscal year 1986 estimate	Fiscal year 1987 request
23.31 Local telephone service	$2,561,000	$3,682,000
This category includes line charges, equipment charges, installation charges, local message units, and directory assistance calls.		
23.32 Long distance—commercial	66,000	129,000
This funds commercially placed long distance telephone calls.		
23.33 Long distance—FTS	1,056,000	1,475,000
This category includes special teleconferencing and all other long distance telephone calls placed utilizing GSA's federal telecommunications system (FTS)		
23.39 Other telecommunications charges	33,000	2,535,000
This fund includes charges for facsimile transmission and miscellaneous telecommunications transmission over telephone lines and the rental in FY87 of a PBX in conjunction with the Department of Treasury. Without the PBX FY87 would be $35,000.		
	3,716,000	[1] 7,821,000

[1] Without the PBX in 23.39, the total becomes $5,321,000.

Question. What telecommunications (data communications) capabilities does the GAO have or acquire? Who provides these data and data communications services to GAO? What is the present total cost of data communications for the GAO? Please provide for the record a description and cost of data communications and data contract services.

Response. GAO currently does not have any data switches, front end processors or any other dedicated data telecommunications equipment. We utilize the telecommunications equipment provided by our data processing service and public network vendors.

The majority of GAO's data communication services are provided by our data processing services vendors. Arrangements are through public network vendors, and to some degree through their own private network and dedicated local connections. A smaller portion of our data communication services are provided by GSA when we utilize the FTS for dial-up transmissions.

The present cost is approximately $645,000, ($200,000 for data communications services and $445,000 for equipment). The $200,000 figure represents the network costs for the vendors that provide our data processing services. The cost of terminals and modems included in the GS&C budget is approximately $455,000.

This figure is likely to be higher because a portion of the data communications costs are included in the general service charges for some vendors.

DESCRIPTION OF DATA COMMUNICATIONS COST/CONTRACT SERVICES

Vendor	Application	Network provided	Estimated monthly cost
American Management Systems, Inc. (Rosslyn, VA).	Central Assignment & Payables System (CAPS).	TELENET	$9,700
		AMSNET	600
		WATS	200
		Modems	570
National Institute of Health (Bethesda, MD).	Audit Support Timesharing	TYMNET (Not widely used)	1,000 (FTS)
Electronic Data Systems (Rockville, Md.).	OGC Tracking Systems—Bid Protest, CICA.	9600 Baud Dedicated Line + Modems.	504
Computer Network Corporation (Wash., D.C.).	Audit Support Timesharing	UNINET (Not widely used)	127
House Information Systems (Wash., D.C.).	Miscellaneous Administrative Systems.	9600 Baud Dedicated Line	40
U.S. Dept. of Justice (Wash., D.C.)	Payroll System	9600 Baud Dedicated Line	40
U.S. Army Mgt. Support Agency (Pentagon).	Personnel System	9600 Baud Dedicated Line	120
Dialog Information Service (Palo Alto, CA).	Bibliographic Database Service	DIALNET, TYMNET, TELENET	552
Mead Data Services (Dayton, Ohio)	Bibliographic Database Service	MEADNET	154
General Electric (Gaithersburg, MD)	Mission Support Document Systems	Dedicated lines, Modems, and related equipment.	2,500

DESCRIPTION OF DATA COMMUNCATIONS-COST/CONTRACT SERVICES—Continued

Vendor	Application	Network provided	Estimated monthly cost
OCLC, Inc. (Dublin, Ohio)	Bibliographic & Library Service Data base.	9600 Baud Dedicated lines, Modems...	560
Total monthly cost			$16,667
Total annual cost			$200,000

Question. Please provide for the record, the amount of data telecommunicated in a normal busy month (e.g. characters of data), the data communication rate (e.g. bits per sec), the media utilized (e.g. local cable, or commercial means) and the destination (e.g. city or agency).

Response. Because we have not had a need for this kind of information, we have never collected and maintained this data. The vast majority of our communications from remote locations are 1200 bits per second, through dial-up facilities of network vendors and through the FTS. In the Washington area, we have requirements for higher speed transmissions that are satisfied by dedicated lines to host computers. For example, we have dedicated lines from GAO Headquarters to the Pentagon. In the near future, we will have 9 dedicated 9600 bits per second lines from 441 G Street and Union Center Plaza to the House Information System Facility

Organization and Staffing

Question. Please provide organizational, staffing and cost information for the organizations who order telephone equipment or facilities.

Response. GAO employs 2 space management specialists in the Office of General Services and Controller. Total salary and salary related benefits for these employees equal $63,818. These employees are responsible for processing orders for telephone equipment and facilities for all GAO locations.

Question. Does the staffing include technical and repair personnel for telecommunications?

Response. At present, we do not employ anyone at GAO to perform technical work. All such work is procured from the American Telephone and Telegraph Company and the local telephone companies.

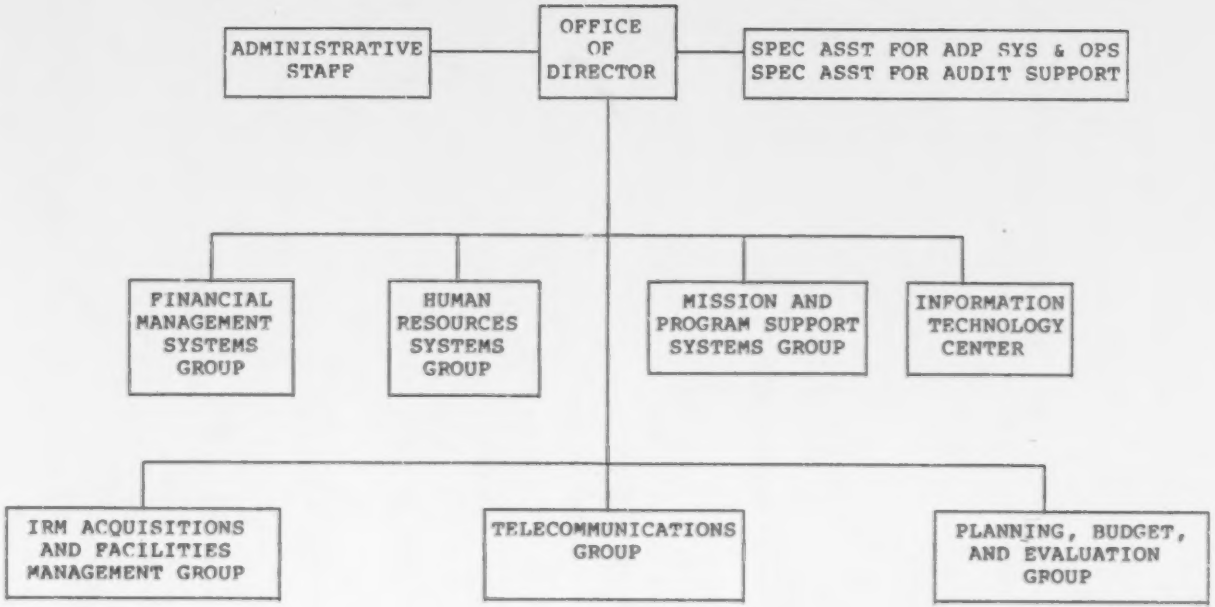
Question. Please provide organizational, staffing and cost information for the data organizations.

Response. Currently, all telecommunications services and facilities come under the overall direction of the Assistant Comptroller General for Operations. Within this context, generally the Office of General Services and Controller (GS&C) manages and administers voice communications facilities and equipment, including long distance and local lines and instruments as well as processsing orders for modems and lines to support GAO's adminstrative data functions. The Office of Information Resources Management manages and administers data communications as they relate to the various ADP applications, i.e., timesharing and data network services.

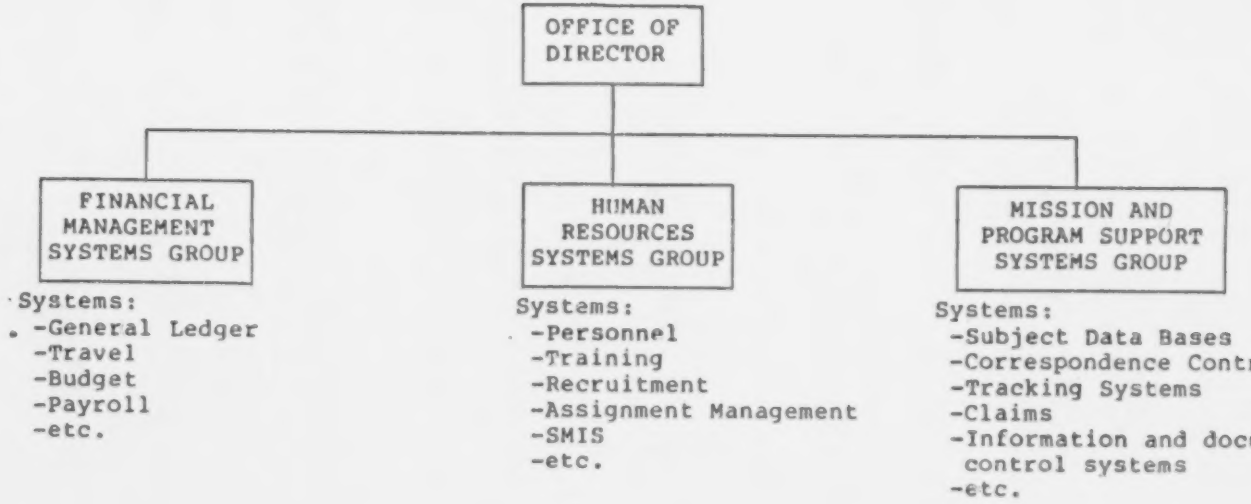
GS&C has two space management specialists that process service orders and review and verify telephone bills prior to payment. OIRM, has 2 communications specialists in its Telecommunications Group. This group is assisted by other technical and administrative personnel within OIRM and a contractor, Computer Data Systems Incorporated (CDSI), for coverage of data requirements

Cost, exclusive of payroll, amount to: (1) $200,000—Data Network Services; (2) $445,000—Data Communications (Terminals & Modems).

OIRM Organization Chart

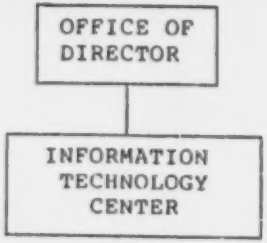

ADMINISTRATIVE STAFF
OFFICE OF DIRECTOR
SPEC ASST FOR ADP SYS & OPS
SPEC ASST FOR AUDIT SUPPORT
FINANCIAL MANAGEMENT SYSTEMS GROUP
HUMAN RESOURCES SYSTEMS GROUP
MISSION AND PROGRAM SUPPORT SYSTEMS GROUP
INFORMATION TECHNOLOGY CENTER
IRM ACQUISITIONS AND FACILITIES MANAGEMENT GROUP
TELECOMMUNICATIONS GROUP
PLANNING, BUDGET, AND EVALUATION GROUP

October 1985



Functions: Management information systems design and operational support for all steps in the system life cycle (except system operations), including:

- -feasibility studies
- -requirements analysis
- -system design
- -programming
- -testing
- -installation
- -initial training
- -turnover
- -application maintenance
- -documentation maintenance
- -coordination with Facilities Management for access to equipment and computer time
- -preparation of statements of work and COTR/Project Management responsibilities for contracts to support the functions of the group

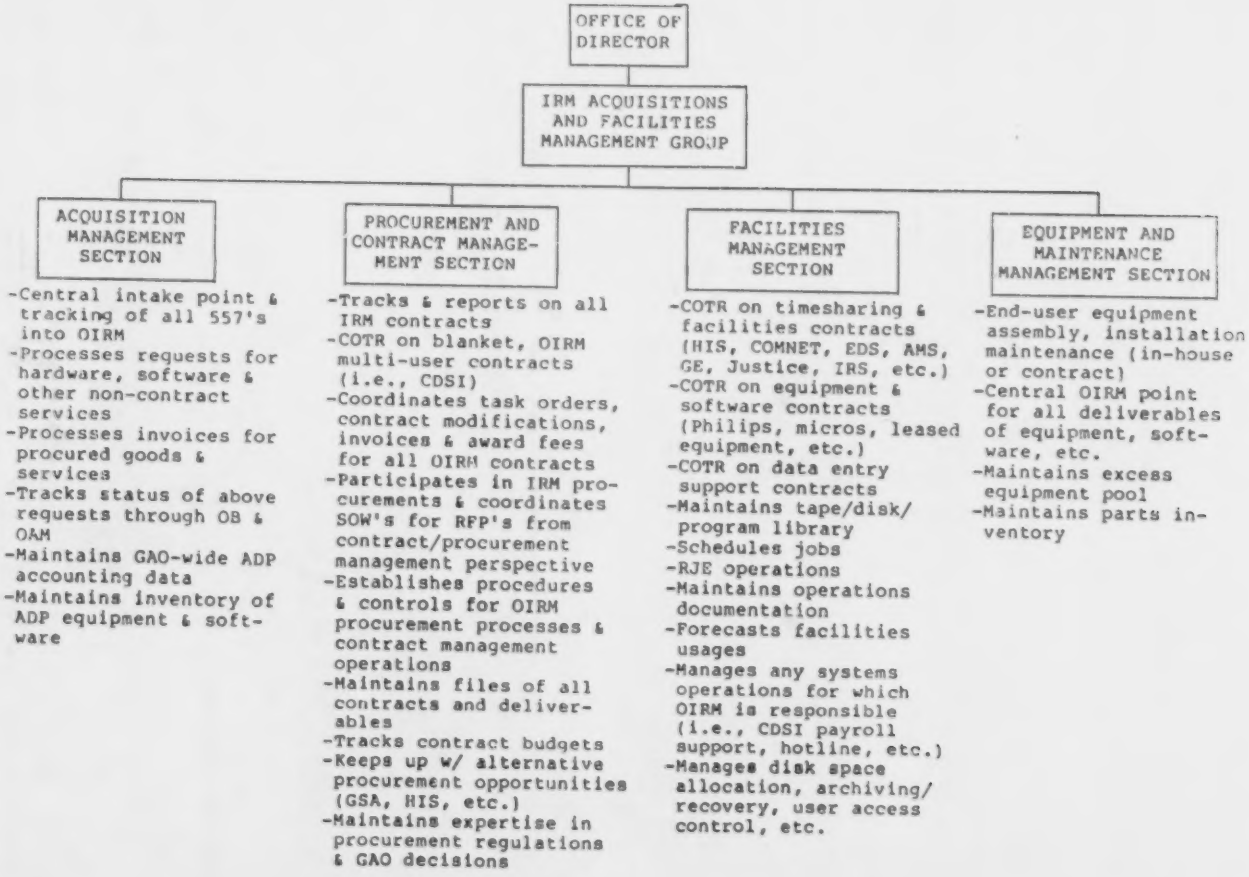


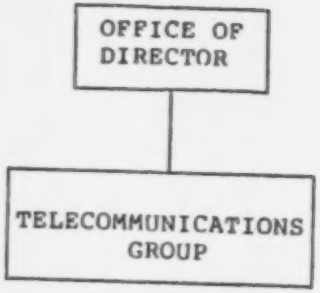
TECHNICAL SERVICES ACTIVITIES:

- -Responds to walk-in requests
- -Assists users in applying existing end-user technology
- -Provides all hotline services
- -Demonstrates technology of interest to GAO
- -Evalutes new hardware and software for single user systems
- -Serves as information clearing-house (EBB, news letter, etc.)
- -Coordinates with OOHD in providing formal training
- -Conducts marketing research

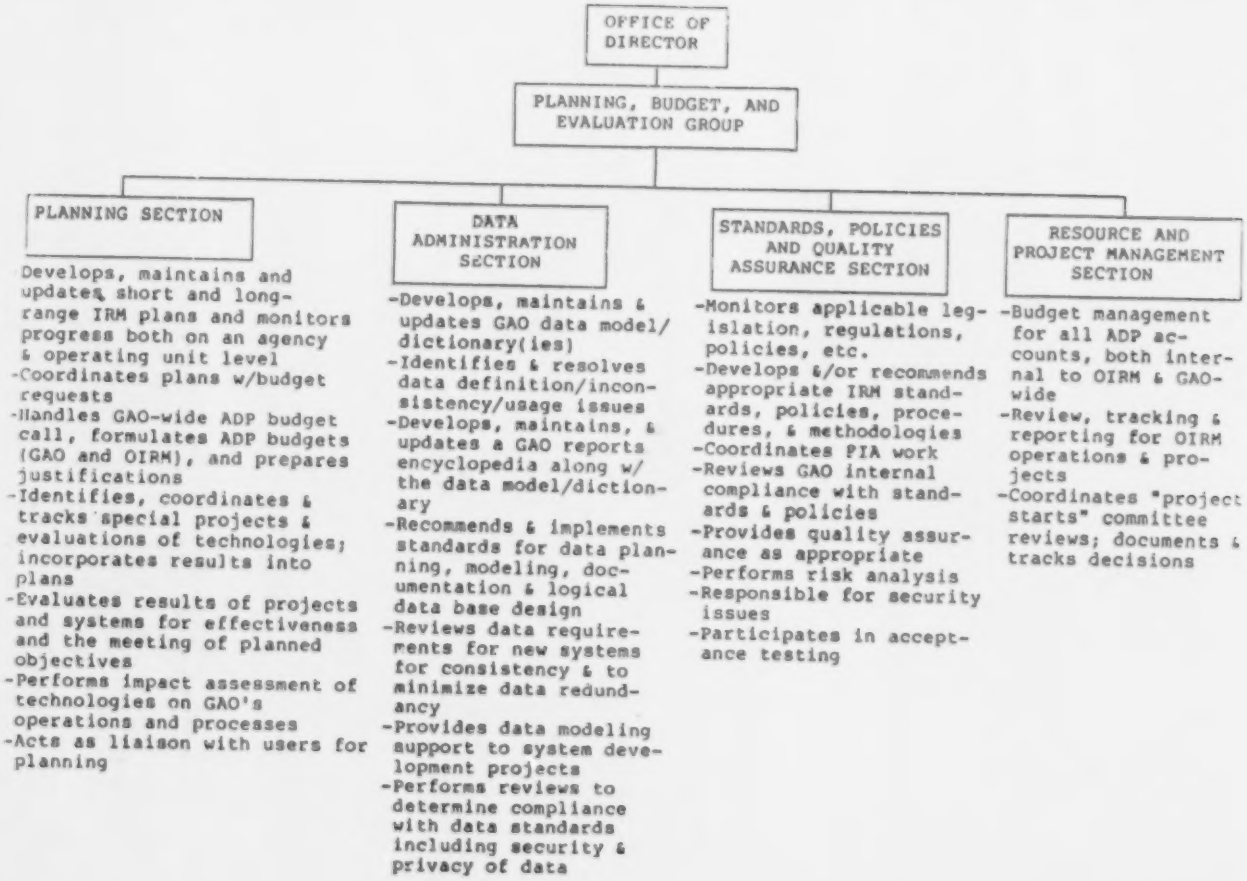
SERVICE DESK AND REFERRAL ACTIVITIES:

- -Central intake and control point for all requests into OIRM (excluding 557's)
- -Refers customers and requests to other OIRM organizations
- -Tracks status of all requests for all (including OIRM internal) customers (excluding 557's)
- -Prepares periodic and on-demand reports on request and referral status
- -Serves as OIRM message center


OFFICE OF DIRECTOR
IRM ACQUISITIONS AND FACILITIES MANAGEMENT GROUP
ACQUISITION MANAGEMENT SECTION
-Central intake point & tracking of all 557's into OIRM
-Processes requests for hardware, software & other non-contract services
-Processes invoices for procured goods & services
-Tracks status of above requests through OB & OAM
-Maintains GAO-wide ADP accounting data
-Maintains inventory of ADP equipment & software
PROCUREMENT AND CONTRACT MANAGEMENT SECTION
-Tracks & reports on all IRM contracts
-COTR on blanket, OIRM multi-user contracts (i.e., CDSI)
-Coordinates task orders, contract modifications, invoices & award fees for all OIRM contracts
-Participates in IRM procurements & coordinates SOW's for RFP's from contract/procurement management perspective
-Establishes procedures & controls for OIRM procurement processes & contract management operations
-Maintains files of all contracts and deliverables
-Tracks contract budgets
-Keeps up w/ alternative procurement opportunities (GSA, HIS, etc.)
-Maintains expertise in procurement regulations & GAO decisions
FACILITIES MANAGEMENT SECTION
-COTR on timesharing & facilities contracts (HIS, COMNET, EDS, AMS, GE, Justice, IRS, etc.)
-COTR on equipment & software contracts (Philips, micros, leased equipment, etc.)
-COTR on data entry support contracts
-Maintains tape/disk/program library
-Schedules jobs
-RJE operations
-Maintains operations documentation
-Forecasts facilities usages
-Manages any systems operations for which OIRM is responsible (i.e., CDSI payroll support, hotline, etc.)
-Manages disk space allocation, archiving/recovery, user access control, etc.
EQUIPMENT AND MAINTENANCE MANAGEMENT SECTION
-End-user equipment assembly, installation maintenance (in-house or contract)
-Central OIRM point for all deliverables of equipment, software, etc.
-Maintains excess equipment pool
-Maintains parts inventory



-Responsible for voice and data communications for all GAO locations (planning, implementation and operations)
-Provides program direction for integrated communications systems and services
-Develops protocols and interface standards among systems and networks used by GAO
-Manages PBX or other facilities/ networks for GAO communications
-Conducts/coordinates office automation pilot projects for/with divisions, regions and staff offices
-Responsible for communications security of integrated information systems


OFFICE OF DIRECTOR
PLANNING, BUDGET, AND EVALUATION GROUP
PLANNING SECTION
Develops, maintains and updates short and long-range IRM plans and monitors progress both on an agency & operating unit level
-Coordinates plans w/budget requests
-Handles GAO-wide ADP budget call, formulates ADP budgets (GAO and OIRM), and prepares justifications
-Identifies, coordinates & tracks special projects & evaluations of technologies; incorporates results into plans
-Evaluates results of projects and systems for effectiveness and the meeting of planned objectives
-Performs impact assessment of technologies on GAO's operations and processes
-Acts as liaison with users for planning
DATA ADMINISTRATION SECTION
-Develops, maintains & updates GAO data model/dictionary(ies)
-Identifies & resolves data definition/inconsistency/usage issues
-Develops, maintains, & updates a GAO reports encyclopedia along w/ the data model/dictionary
-Recommends & implements standards for data planning, modeling, documentation & logical data base design
-Reviews data requirements for new systems for consistency & to minimize data redundancy
-Provides data modeling support to system development projects
-Performs reviews to determine compliance with data standards including security & privacy of data
STANDARDS, POLICIES AND QUALITY ASSURANCE SECTION
-Monitors applicable legislation, regulations, policies, etc.
-Develops &/or recommends appropriate IRM standards, policies, procedures, & methodologies
-Coordinates PIA work
-Reviews GAO internal compliance with standards & policies
-Provides quality assurance as appropriate
-Performs risk analysis
-Responsible for security issues
-Participates in acceptance testing
RESOURCE AND PROJECT MANAGEMENT SECTION
-Budget management for all ADP accounts, both internal to OIRM & GAO-wide
-Review, tracking & reporting for OIRM operations & projects
-Coordinates "project starts" committee reviews; documents & tracks decisions

USE OF MICROCOMPUTERS IN AUDIT WORK

Mr. FAZIO. You have been using a lot of word processors. Has that created more demand in your information system?

Mr. SOCOLAR. Yes. As we have progressed and advanced with the new technology, we have been engaged in some pretty heavy training programs. Our staff is becoming very proficient in the use of these new technologies, and, as I mentioned earlier, we see the demand for data transmission growing exponentially.

Mr. FAZIO. What is a GAO professional sitting at a work station with these available resources able to access?

Mr. FEE. Several things, Mr. Chairman.

During the course of an audit, depending upon the nature of the data being gathered, they will either have data resulting from questionnaires that will be keyed in and subsequently manipulated, or they may be accessing the agency's computer data files.

Mr. FAZIO. They are hooked into the DOT computer and they have data at their fingertips that would be available to, say, the Comptroller of the Department or the agency.

Mr. FEE. A lot depends on whether you have been granted access to go straight into the system or whether or not you are pulling part of the data down in either a disc or some other form.

Mr. FAZIO. What is typical?

Mr. FEE. It is all over the place, really.

Some of the agencies will let us access their data. We go straight into their files and pull statistical samples out and so forth.

In other agencies we have to pull that data off ourselves, usually in the form of a magnetic tape, and we process it through a time-sharing vendor so that the data can be manipulated.

The auditors, sitting at the work station, have the capacity in their machines to work with the capacity of the computer they are accessing.

Our auditors can also transmit data or information, whatever it happens to be, from themselves to somebody else working on the team locally, or back and forth between regional offices and Washington.

Mr. FAZIO. Typically, that would be the case. You have a regional team and a Washington manager.

Mr. FEE. We see more and more where the audit team has data they want somebody to look at in Washington or they have a draft product they want reactions to and you pass a lot of that information back and forth.

The other thing that the auditor can access and use that machine for is looking at certain administrative systems such as our assignment management system where they can pull summary data on the cost of their assignment, number of staff days, milestones, and things of that nature.

They can pull that off the central data bank that is sitting here in Washington.

Mr. FAZIO. So, you have management tools available to these people as they do their work, and programs they can use to monitor their progress.

Mr. FEE. We have an assignment management system that is geared to give them some information on each project and, of

course, that is aggregated up to the Comptroller General's level for all the offices.

Mr. FAZIO. He has it for everyone's work product, at least at list level?

Mr. FEE. He has access to it and he can look at it on an individual job basis or a summary basis.

Generally, it is in a summary way unless we have a particular problem we want to look at.

ADDITIONAL COMPUTING TOOLS NEEDED FOR AUDIT WORK

Mr. FAZIO. How do you envision the future, Frank? What would you anticipate that you don't have currently? What kind of capability do you expect in both policy terms as well as in terms of hardware and software?

Mr. FEE. I think the future is interesting in the sense that I think we know what we want it to look like.

Getting us there is going to be an interesting part of it.

I need to split it out between that auditor or what I call the mission work—audit and evaluation work—and what our managers need from our administrative systems. Sometimes our people use the same work station to fill both needs. What we would like that auditor to be able to do is have a menu of tools available to him, anywhere from a microcomputer, that can be right at the desk like we were talking about, through some type of a middle level processor to handle larger jobs, on into a mainframe to handle some of the very large jobs and large data bases that we have to analyze.

A lot of that should be transparent to the auditor in a sense that they ought to be able to utilize any one of those depending on the size of the job.

As you know, we have been working on the long-range plan for our administrative systems, for some time now and I think we are getting close to where we know what we are going to have to do.

Mr. FAZIO. You don't have to reiterate.

Mr. FEE. I am not going to. Thank you, sir.

But I think that administrative systems need to be streamlined in putting together the whole program so the Comptroller General and others can have access to the information.

NEED FOR INFORMATION-SHARING BY LEGISLATIVE BRANCH

Mr. FAZIO. When will it become important to other entities in the legislative branch?

I am trying to bring it back into the system now. Is there a benefit that you think other agencies could derive?

Are there things you could access that are not readily available in your own system? Is there need for integration of all this, or perhaps there is management data that you don't want to share with others.

I don't know where confidentiality comes into place. There may be security considerations about sensitive data.

But at some point in the future it seems to me we are going to see more non-confidential data integrated. What are the opportunities and pitfalls in the future?

Mr. FEE. I think there is a lot of data that we have that other people should be able to access and can take advantage of.

I think there is data that other people have that would be useful to us in doing our work, and to a large extent we are doing some of that now.

Let me take the first part of it. As you know we have a system that summarizes and keeps track of the work we have done over the years and our recommendations. It prints findings and our reports.

That is being run under a contract with the General Electric Company out in Gaithersburg. I think that data base and the information in that could be extremely valuable to the members of Congress and their staffs in understanding what GAO has done, what we have found, and what recommendations we have made.

Mr. FAZIO. Currently, that is not immediately accessible to committees or members?

Mr. FEE. Not automatically.

We can get the information for you if you need it. We can provide it to you, but you can't dial it up directly now, is that correct?

Mr. BROWN. That is right.

Mr. FEE. On the other hand, other agencies have data that is necessary and helpful to us and I think that the experience over the past years helped us carry out some Gramm-Rudman responsibilities in terms of getting data from the CBO and from the executive agencies, that we then had to analyze.

We got a lot of that data, we didn't get it automatically. So there is a great opportunity to gather that data automatically in the future.

I think one other aspect that holds a future for us is the use of telecommunications to present our findings through the use of video.

We did that twice this last year with good results, at least from the feedback we have had, whereby we can transmit that up here.

Mr. FAZIO. How did you do that?

Mr. FEE. We brought the videotape up and played it on your cable system.

We don't have a way to transmit it electronically from our office directly to you.

Mr. FAZIO. Wouldn't it seem logical to have you part of our cabling system so the data could be directly transmitted?

Mr. FEE. We are to a small extent, in the sense that we are tied into the cable system, at least in the Comptroller General's office and Office of Congressional Relations, but that is limited.

Mr. FAZIO. You use that for the limited C-span kind of thing?

Mr. FEE. Just to see what is going on, that is correct.

Mr. FAZIO. But there is potential for using it for other purposes and for data communications if that were the way to go. Mr. Rose sees much of that going on telephone wire rather than that cable system.

Mr. FEE. I think, Mr. Chairman, we are constantly searching for ways to try to get the information that we develop to the Members of Congress and their staffs as efficiently as we possibly can.

Technically now, there is no reason why you can't access those things and have us transmit it that way.

Mr. FAZIO. They are not technical questions, though, they are policy?

Mr. FEE. Implementation issues.

Mr. FAZIO. Costs?

Mr. FEE. Cost issues, yes.

Mr. FAZIO. We have some questions for the record concerning a consolidated system.

[The questions and responses follow:]

QUESTIONS FOR THE RECORD

Question. What economies, if any, do you consider possible by a consolidated system? Would a common system adversely impact your current operations?

Response. Intuitively, we believe a consolidated system could be advantageous, although not without some offsetting disadvantages.

Advantages: Economies of staff and scale; closer integration.

Disadvantages: A potential loss of flexibility and responsiveness; the risk of having to compromise participant's needs.

From an organizational perspective, we would expect substantial benefits to being able to draw on each others staff and expertise for planning, procurement, implementation and operation, although these benefits may be offset by scheduling and coordination problems and conflicting priorities.

We are looking at a complex market characterized by an uncertain regulatory environment, evolving stardards, intense competition and rapid technological change. Without further study, we are not able, at this time, to make any reasonable prediction whatsoever regarding the nature and extent of those economies beyond the obvious benefit of avoiding duplication of staff expertise and the apparent economies of scale.

On the other hand, a more loosely integrated network of compatible systems might allow participants to tailor their system to their own particular needs and provide enhanced responsiveness and local control, although possibly at the expense of some economies and added complexity.

Without further study, we also are not able to determine whether a common system would adversely impact our current operations.

Question. What would be your views concerning methods for achieving and managing cost-effective consolidated telecommunications capability for the Congress and its agencies?

Response. It is GAO's view and concern that we proceed in a manner that would be most cost beneficial for the Government. As a whole, we believe that there is potential for the Congress and its agencies to save through the sharing of resources and the benefits of competition. It is imperative to ensure proper management through an intensive planning process. An outline of the following procedural approach would enhance the successful accomplishment of the acquisition of services and facilities to meet present and future needs.

1. Appoint a project manager
2. Establish a Task Force (Representatives from each agency)
3. Conduct a preliminary assessment

If such an assessment indicated a consolidated system is not feasible, the process would stop.

A go decision means to proceed with;

4. Perform a requirements analysis: Determining common unique and future requirements.
5. Consolidate the requirements into a technical specification
6. Decide on the cost allocation and appropriate funding mechanisms
7. Define the management and oversight structure
8. Coordinate procurement
9. Establish and approve an interagency agreement
10. Establish and coordinate an implementation plan and policies
11. Issue request for proposal to industry
12. Form technical and cost evaluation teams
13. Provide management oversight
14. Finalize procurement process
15. Appoint management and operation teams

POLICY DECISIONS ON ACCESS TO INFORMATION

Mr. LEWIS. Mr. Chairman?

Mr. FAZIO. Yes, Mr. Lewis?

Mr. LEWIS. On that line, let's take ourselves to the point where there is a flexible system with some central means of exchanging information, carrying on our individual agency work but, in turn, communicating with one another.

Who should be making the policy decisions as to when there is access available and when is there not?

Mr. FEE. That is a much more difficult question.

Mr. SOCOLAR. If I might make a comment here, it seems that as these things are put in place, as the technology advances, we will probably find uses for information exchange that we can't even think about right now. I think that fundamentally the respective owners of the information are going to have to deal with each other and determine among themselves which of these data bases are transferrable, which ones are open, and which ones carry risk to open access.

I am not sure that that is a question that is answerable right now until you look at each one of these data bases separately.

Mr. LEWIS. It is clearly not answerable, but there also are people who want to maintain such policy control themselves, and they are asking the question separately as we are attempting to figure out how you put together something collectively; and without our asking them and discussing it with them out front right now the decisions may be made before we get there.

Mr. SOCOLAR. It would seem to me with a Legislative Branch dealing with this whole issue, that various parts of the Legislative Branch should be talking to each other and to go seeking the answers to those kinds of questions before everyone goes off in his own direction without any kind of coordination at all.

ACCESS TO GAO RECORDS

Mr. THOMAS. Mr. Chairman, let me ask a question a different way.

Is there anything in the files of GAO, other than work in progress—which, obviously, you don't want to look over someone's shoulder while they are doing their job—but other than work in progress, is there anything in your files that you would not want accessed?

Mr. SOCOLAR. Yes. I think there are some things we probably would not want accessed freely and openly by staff. I don't know that there is very much in our files that we wouldn't make open to Members themselves.

Mr. THOMAS. What would you not make open to Members?

Mr. FAZIO. There is an artificial distinction there, you know.

Mr. THOMAS. Let's keep the artificial distinction for the moment.

Mr. SOCOLAR. What would we not make available to whom?

Mr. THOMAS. You indicated there was a lot of stuff you didn't want to make available to staff, but you didn't say the Members would have access to it. "There is very little we would not want Members to have access to."

My obvious question is, what is it you don't want us to have access to?

Mr. SOCOLAR. I can't think particularly now of anything which in some cases, we wouldn't make available——

Mr. THOMAS. You want to reserve the right.

Mr. FEE. If I could add a thought there, I would think you would have access to even classified information. I think what we would have to worry about is how we got the information to you; and what controls we had over it.

Mr. THOMAS. That is the kind of answer I want to hear. That is, you don't have limits; you have procedures in terms of how you get it and under what circumstances.

Mr. FEE. There may even be some classified stuff I don't know about. I think that is probably what Milt was referring to. It boils down to how that information gets to you. There also might be certain—administrative data and job-related data. That information falls into the category that Milt is talking about.

When you get into individual personnel files, what is in my personnel file and whether you or a member of the staff has to have it, that falls into a different category.

FURTHER DISCUSSION ON SECURITY

Mr. THOMAS. What classified information do you operate on? Is that what you mean by "classified information," individual personnel files?

Mr. SOCOLAR. No, no, no. We don't have any authority ourselves to classify information. But in dealing with the Executive Branch, we have to follow the classifications that the Executive Branch places on material.

Mr. FAZIO. That information can be in your computer system. It is not going to be strictly related to paper confidentiality, for instance a DOD document.

Mr. FEE. It can be in software in our computer, and it can be in DOD's computer.

Mr. FAZIO. You get beyond that.

Mr. FEE. Yes, sir.

That, again, Mr. Thomas, deals with what that information is. The issue is really how you get it.

Mr. LEWIS. Mr. Thomas and I are pushing along a line that would suggest that we would like to have a procedure for obtaining access. The other side of it is, as you go into certain classified information that you must deal with, critical to the national interest, you want to make sure those systems are effectively maintaining the confidentiality that is necessary for the protection of national interest.

I hear the software people say that if people can secure their paper files, then the computer can do it much better. That is a rather standard and hackneyed comment, and I am not sure if it is actual or not.

Mr. SOCOLAR. We have all heard of people who have gotten into other people's computers. That can be a very difficult problem, actually.

Mr. FAZIO. It seems to call out again for the concept of an oversight authority to make some of these judgments, and not simply take an all-or-nothing approach, or let it be resolved one incident at a time.

Mr. LEWIS. It is simple, but actually suggests that the owners of data will have to make some decisions as to whether it is public.

Mr. FAZIO. I am sure a lot of Executive agencies will be nervous if they think data they provided to GAO is going elsewhere including Congress.

Mr. SOCOLAR. Generally, if they give it to us, it is available.

Mr. FAZIO. They assume that it's available even though they would like it confidential.

Mr. SOCOLAR. Yes. As a matter of fact, even when we seek to get data on some kind of confidential basis, we have to make clear that confidentiality only goes so far.

Mr. FAZIO. What about information we provided? What is your inner relationship with HIS or GPO, for example?

Mr. FEE. Right now, we use HIS as almost a vendor. We buy part of their time to do some of our own processing.

Mr. FAZIO. You use them as a vendor, not as a source of information?

Mr. FEE. Not right now.

Mr. SOCOLAR. We use systems like JURIS and LEXIS for our legal research, but I think that is probably the extent of it.

Mr. LEWIS. What kind of fee do you charge the Washington Post for their time on your computer?

Mr. FEE. Well, we don't have a computer. They get their information from different sources.

Mr. LEWIS. They don't have access to your file by electronic means?

Mr. FEE. Not that we know of, anyhow, no.

PROCUREMENT OF ADP SERVICES

Mr. FAZIO. I am wondering who makes the determination as to whom and how you contract? For example, why do you go to HIS for those services versus another vendor?

Mr. FEE. Right now, the way it is working, depending upon the need that we have, we will go out and try to get the best vendor possible for that. Some of the vendors that we go to are procured competitively through advertisements and analysis and so forth.

In the case of HIS, we are going to use them to help us with our interim financial management system. We look at that as an interim measure to help us get the system up and operational.

But, generally speaking, all our other vendors we procure competitively.

Mr. BROWN. That is right.

Mr. FAZIO. You do?

Mr. BROWN. We have some other work we do on other agencies' computers, too. We look to other agencies to see if there might be some cost benefits there, and if other agencies will let us on, if they have the room, and we can go that way, we will go that way.

We use NIH, Agriculture, the Army computer and HIS. If other agencies for some reason, or there are problems, then we go with competitive procurement.

Mr. FAZIO. Have you ever had HIS compete with a private vendor?

Mr. BROWN. No. We have never gone through that kind of process.

Mr. FAZIO. Could you have?

Mr. BROWN. Could have.

Mr. FAZIO. Is it a relevant question?

Mr. BROWN. Yes.

Mr. FEE. I would think that decision would be up to them to do that; isn't that correct?

Mr. BROWN. We have never really thought about it. We have compared what private vendors would charge us for operating our Financial Management system. We have looked at what we would have to pay on the outside for that service, and then have compared it to what HIS would do it for.

Mr. FAZIO. What have you found when you have done that?

Mr. BROWN. I don't recall the data. I do remember it was cheaper with HIS. I don't remember the exact numbers.

Mr. FEE. We can get that for you.

Mr. FAZIO. Do you gentlemen have any information on that?

Mr. SOCOLAR. I just thought that when we looked at the support of the financial management system, that we had looked at the cost from HIS and found it to be lower.

Mr. FEE. I think the question was, do we remember the cost between them and other vendors.

Mr. FAZIO. If you can provide that for the record.

Mr. FEE. Fine.

[The cost analysis follows:]

COST ANALYSIS SUMMARY

The costs for providing processing services needed to support the new FMS were developed using three alternatives: sharing an existing facility, obtaining service from a commercial timesharing service, and acquirig a dedicated machine.

Obtaining data processing services from the U.S. House of Representatives, Committee on House Administration's House Information Systems (HIS) (an existing government facility) provides the lowest cost alternative for meeting GAO's projected ADP needs. In addition to HIS offering the most cost effective alternative several other factors also should be considered in evaluating the alternatives. First, GAO would avoid about $150,000 of procurement costs by not continuing with a competitive procurement. Second, by using HIS there would be no additional cash outlay to the Government—GAO's payment to HIS is an interagency fund transfer. Furthermore, with the addition of GAO's workload to the HIS computer, it is very likely that HIS billing rates will decrease. Thus widening the gap between HIS and commercial rates.

The cost of each alternative was calculated on the annual workload discussed below.

	Service cost per year	Procurement cost
Sharing at HIS	$484,441	0
Dedicated Facility	892,719	$150,000
Commercial source	821,225	150,000

Feasibility of Sharing

The sharing option is being explored. The HIS has time available on the equipment that will run the new FMS.

COST ANALYSIS—COST OF USING HIS (CICS SERVICE)

Items	Used	Amount
CPU charges: $110.00 per CPU minute	1,193	$131,230
DISK I/O: $.71 PER 1,000	89,100,000	63,261
Connect time: $2.48 per hour	12,480	30,950
Print lines: $1 per 1,000	40,000,000	40,000
DASD (disk): $.50 per million bytes per day	1,200,000,000	219,000
Total cost		$484,441

The following assumptions were used in the cost analysis.

WORKLOAD

The number of transactions are expressed in terms of the number of FMS screens. The number of screens are derived from the number of documents processed by the CAPS system. We assumed that on the average four (4) data entry screens would be used to enter each document.

A Railroad Retirement Board (RRB) study found that on their system each screen generated 1M (million) CPU instructions. The workload at RRB and GAO is similar. Therefore, we applied the same sizing factor of 1M instructions per screen to GAO's workload.

The RRB study also indicated that program development and test used 109 CPU hours a month on a .8 MIPS machine. The RRB has 36 FTE programmer/analysts. GAO estimates its workload (4 FTE programmers) at 1/9 of RRB's or about 10 CPU hours a month on a 1 MIPS machine (1/9 X 109 X .8 = 9.6). The hours per year at 1 MIPS = 120; at 1.5 MIPS = 80; and at 20 MIPS = 6 hours.

CPU CHARGES

The HIS computer executes 20M (million) Instructions Per Second (MIPS).

The AMS Conceptual Design projects GAO will process about 247,400 documents a year. We estimate that each document will generate 4 data entry screens for a total workload of about 1,000,000 screens. 1M screens X 1M CPU instructions equals 1,000,000,000,000 instructions per year (IPY). Dividing the IPY by the number of instructions the HIS CPU executes in one second (20 MIPS) results in 50,000 CPU seconds. 50,000 CPU seconds equals about 833 CPU minutes. This was increased by 360 minutes for test and development work or 1,193 total CPU minutes. HIS charges $110.00 per CPU minute for CICS work. Total cost $131,230.

DISK I/O CHARGES

Based on GAO's past work at HIS with M204 production one CPU hour generates between 4 million (M) and 6M disk I/Os. We used 4.5M disk I/Os for our study. The amount of CPU time from above converted to CPU hours equals 19.8 CPU hours. Using the ratio of 4.5M I/Os to 1 CPU hour yields about 89,100,000 disk I/Os per year. HIS charges $.71 per 1,000 I/Os. Total cost $63,261.

CONNECT TIME

We estimate that on the average 40 terminals will be connected to HIS one hour per day for 312 days per year. HIS charges $2.48 per hour. Total cost is 312 X 40 X $2.48 = $30,950.

PRINT LINES

The conceptual design estimates we will print about 40,000,000 lines per year. HIS charges $1.00 per 1,000 lines. Total cost $40,000.

DIRECT ACCESS STORAGE DEVICE (DASD)

We estimate, based on the Conceptual Design, that GAO will use about 1200 million bytes of on-line storage. HIS charges $.50 per million per day. Total cost 1200 X $.50 X 365 days = $219,000.

COST OF DEDICATED FACILITY

The cost of a dedicated facility was computed using the IBM 4361-M4 as the base price. The cost includes equipment, personnel, space to house the equipment and overhead. We estimate the total cost per year to be about $892,719.

EQUIPMENT PURCHASE COST

Item	Amount	Maintenance/ Year
CPU:		
IBM 4361-M4 with 8 million bytes main memory (1 MIPS)	$127,600	$8,000
3278-2A display console	1,800	300
1601 communication adaptor	1,700	
3380-A04 disk units (4)	224,900	14,000
3880-01 disk controller	43,600	2,100
3420-8 tape units with 1600/6250 bpi (2 units)	40,200	10,900
Software initial fees	21,380	
Total	$461,180	$35,300

Dedicated facility costs per year

Communication processor	$25,000
Space rental (2,500 sq. ft. x 50.00)	125,000
Personnel: 7 Staff @ 45k yr.	315,000
System programmer ¼ time	25,000
Equipment and Software (5 yr. amortization)	92,236
Software including MVS 3.8 operating system [1]	101,240
Maintenance per year	35,300
Subtotal	$718,776
Cost of providing back-up service 15%	107,816
Subtotal	$826,592
Profit 8 percent	66,127
Total	$892,719

[1] Includes annual charge for selected basic software: TSO $7,044 CICS 11,040; JES/2 $59,472; RACF $10,608; COBOL $2,388; and MVS 3.8 $10,688

COST OF COMMERCIAL TIMESHARING

We examined GSA's FY 86 TSP MASC price list for vendors offering service on a timesharing basis that would meet GAO's expected workload. The following table shows the published discounted vendor rates for CICS service.

TABLE A

Vendor [1]	CPU sec. 1 MIPS	Rates for— Disk I/O per 1000	Rates for— Memory resident charge per 1000k/1 MIP sec
A:			
Ser 1	$1.77	$2.60	None
Ser 2	.71	2.43	None
B	.42	2.27	$1.32

[1] There are other vendors on the GSA schedule but their billing items are not listed separately.

TABLE B—COMPARISON OF CPU RATES TO HIS

Vendor [1]	CPU Sec. 1 MIPS	Rates for CPU min HIS	Rates for Workload HIS CPU min	Equivalent CPU cost
A:				
Ser 1	$1.77	$2,124.00	1193	$2,533,932
Ser 2	.71	852.00	1193	1,016,436
B	.42	504.00	1193	601,272
HIS	.09	110.00	1193	131,230

[1] Convert vendor A and B CPU rate to HIS by: CPU RATE PER SEC. @ 1 MIPS X 60 X 20 = CPU Rate AT HIS. (60 = number of seconds in minutes; 20 = HIS CPU speed of 20 MIPS).

In our cost analysis below we selected a commercial timesharing service with a rate schedule of items comparable to the items billed by HIS. Although this schedule is not a published TSP MASC the rates appear comparable to those shown in Table A above. The service uses an IBM 4341-12 computer that operates at 1.5 MIPS. The workload is the same as defined for the HIS systems.

COST ANALYSIS—COST OF USING COMMERCIAL SERVICE (CICS)

Items	Used	Amount
CPU charges; $.48 per CPU second	955,000	$458,400
DISK I/O: $1.75 Per 1000	89,100,000	155,925
Connect time: Dedicated ports		
4 @ 1,000 month ea.	4	48,000
20 terminals 1hr/day/yr. 6.00/hr		37,400
Print lines: $.575 per 1,000	40,000,000	23,000
DISK I/O: dedicated disk (3350) $2,000/pack/month	4	96,000
Terminal I/O: $.0025/MESSAGE	1,000,000	2,500
Total cost		$821,255

CFU CHARGES

The AMS Conceptual Design projects GAO will process about 247,400 documents a year. We estimate that each document will generate 4 data entry screens for a total workload of about 1,000,000 screens. 1M screens X 1M CFU instructions equals 1,000,000,000,000 instructions per year (IPY). Dividing the IPY by the number of instructions the IBM 4341-12 CPU executes in one second (1.5 MIPS) results in 667,000 CPU seconds. This was increased by 288,000 CPU seconds for test and development work or 955,000 total CPU seconds. The commercial source charges $.48 per CPU second for CICS work.

DISK I/O CHARGES

Based on GAO's past work at HIS with M204 production one CPU hour generates between 4M and 6M disk I/Os. We used 4.5M disk I/Os for our study. The amount of CPU time used at HIS converted to CPU hours equals 19.8 CPU hours. Using the

ratio of 4.5M I/Os to 1 CPU hour yields about 89,100,000 disk I/Os per year. The commercial source charges $1.75 per 1,000 I/Os. Total cost $155,925.

CONNECT TIME

We estimate that on the average 40 terminals will be connected one hour per day for 312 days per year. We estimate that about half (20) the terminals would be connected to dedicated ports with the commercial service. The dedicated ports cost a flat fee of $1,000 per month per port. The remaining terminals (20) would be connected via a network service one hour per day for 312 days at $6.00 per hour. Total cost is 312 X 20 X $6.00 = $37,400 plus 4 ports/month =$48,000.

PRINT LINES

The conceptual design estimates we will print about 40,000,000 lines per year. The commercial service charges $ 575 per 1,000 lines. Total cost $23,000.

DIRECT ACCESS STORAGE DEVICE (DASD)

We estimate, based on the Conception Design, that GAO will use about 1200 million bytes of on-line storage. The commercial service would provide 4 disk storage units at a cost of $2,000/unit/month. Total cost $96,000.

TERMINAL I/O MESSAGE

The commercial source charges $.0025 per terminal I/O. We estimate this to equal a charge for each screen transmitted to/from a terminal. This would be about 1 million screens per year.

TREASURY DEPARTMENT PLANS FOR PBX

Mr. FAZIO. Were you working with the Treasury Department on procuring a PBX for the GAO Building?

Mr. SOCOLAR. I think that has been scratched.

Mr. FAZIO. What was the planned process?

Mr. BROWN. The Treasury Department was in the process of putting a PBX switch in their agency. They have part of their agency in the GAO building, so, they had asked us whether we wanted to participate.

Mr. FAZIO. Share the cost?

Mr. BROWN. Right.

Of course, we would be one of the benefactors of that switch, along with the Treasury.

So, we started some preliminary conversations with them checking out what it would be, how much it would cost, and so on. It progressed to the point of actually holding that as an option when we learned of your telecommunications effort. So, we decided to hold.

Mr. FAZIO. Is that dead or is it just on hold, or is the Treasury proceeding without you?

Mr. BROWN. I think Treasury is proceeding.

Jack would know.

Mr. WHEELER. Treasury is moving out of the building.

Mr. FAZIO. So the question really is moot.

Mr. WHEELER. They probably would not put a switch in that building now anyway.

SYSTEM TO MEET GAO NEEDS

Mr. FAZIO. What would you like to see develop? What is your best case scenario for the future of operating your system now that we are back to square one, so to speak?

Mr. SOCOLAR. Well, I think we would like to see all of the good things that the new technology can provide.

We really want to be able to interconnect wit' our regional offices. We want to have the capability for voice and data transmission at particularly high speed.

It would seem to me that separate and apart from what we want for ourselves, it is important for us to make ourselves a part of the effort that you are interested in to make sure that the economies of scale that are available here are in fact realized. But, at the same time, in all frankness, I think we would want to assure ourselves that we have the requisite degree of control over our own data transmissions that an efficient operation for GAO would require.

Mr. FAZIO. When you say "control," with what aspects are you concerned?

Mr. SOCOLAR. Assurance that whatever we become a part of is going to meet our needs in a way without degrading the service that we are trying to get out of it.

Mr. FAZIO. Priority access service, speed and accuracy of response? What about confidentiality?

Mr. SOCOLAR. Confidentiality to the point of having enough control over the information that it doesn't go where we don't want it to go.

Mr. FAZIO. Frank?

Mr. FEE. Mr. Chairman, I agree with what Milt has said. If we are sharing facilities and sharing resources, and so forth, who and how do you determine what the priority is and what gets on the network, and whose project takes priority?

As we go through it from where we are now, in trying to understand what our needs are, a big part of what our needs are is what does the Congress need in terms of getting that information to them? I think if we can work that out, the rest of it would be relatively simple.

Mr. FAZIO. You have $2.5 million in the budget, as I understand it. What are you going to do with that?

Mr. FEE. The way we had left it at the time of the hearings was that that money was in there, and we had tentatively put it on hold until we sorted through what the committee is doing now.

Mr. FAZIO. That can be thrown back in the pot assuming we are not ready to take some direct initiative this year.

Mr. FEE. Right.

Mr. FAZIO. Or at least part of it, anyway.

Are you still standing behind the centralization of the data and systems?

Mr. FEE. We are debating them internally right now, Mr. Chairman. Where we are, is again, trying to separate that audit support from that administrative support; and the Comptroller General has asked us to go back to the drawing board on some of the administrative support issues. We are examining a basic recommendation that we have some sort of central government-owned contractor operated-type of facility in GAO.

So, we haven't finished that part of our evaluation.

On the audit support side, I think we know pretty much what we want to look for over the long term.

Mr. FAZIO. You have had a data study completed, as I understand it.

Do you know what computer center and networks are required as a result of that work?

Mr. FEE. Under the other project?

Mr. FAZIO. Yes.

Mr. FEE. I would say no.

CLOSING REMARKS TO GAO

Mr. FAZIO. In other words, you didn't get that either out of it?

Mr. FEE. We know what our requirements are—data needs for assignment, management, personnel, and so forth. What we haven't sorted out is what size a facility and who should operate that facility. That is the last piece I hope to have done shortly.

Mr. FAZIO. Unless there are other questions from other members of the committee, I would like to thank you for your appearance today.

Thank you very much.

MONDAY, APRIL 28, 1986.

ARCHITECT OF THE CAPITOL

WITNESSES

GEORGE M. WHITE, ARCHITECT OF THE CAPITOL
J. RAYMOND CARROLL, DIRECTOR OF ENGINEERING
WILLIAM F. RAINES, JR., ADMINISTRATIVE ASSISTANT
EMANUELE CRUPI, BUDGET OFFICER

Mr. FAZIO. We will now hear from the Architect of the Capitol.

The Architect of the Capitol, though not directly responsible for telephone or data communications, provides the site preparations—for example, heat, ventilation, air conditioning, and cable pathways for telecommunications. Telephone and data services for the offices of the Architect of the Capitol are provided by the House and Senate on an apportioned basis.

The Architect provides a community antenna television system which connects the Legislative agencies and offices including the General Accounting Office to a limited degree, through approximately 150,000 feet of coaxial cable and 12,000 connections and other special cable systems to meet specific telecommunication requirements.

Cable pathways are limited in many buildings and new construction will be necessary in some buildings prior to the installation of additional cable.

The Architect has a technical staff of 34 engineers and technicians who support television services and cable systems, and electronic repair services.

George, its nice to see you; and also you, Mr. Carroll. Your agency is a little different than the others who have appeared before us today. We are not as interested in viewing you as a major user of data, but as one that may have some enhanced technical responsibility.

You may become, at least to some degree, the phone company, in the sense of managing the technical side of it. I am not sure you want that job. It sounds as if you are already inching into it, though, since you are handling the cable system.

You have employees who are currently in positions which require electronic skills.

COAXIAL CABLE SYSTEM

George, let me throw you the ball and let you comment as to what you think your role is currently, and what you think it might be in the future. You might also comment on potential costs that might develop.

Mr. WHITE. Thank you, Mr. Chairman.

We, as you said, have installed, under funds provided by this committee, a cable system, a coaxial cable system, throughout all of the buildings on the Hill. We have, I think you mentioned, 12,000—I think it is probably closer to 17,000 connections into that cable system.

Mr. FAZIO. Have some people been splicing in, as they do in some neighborhoods?

Mr. WHITE. We don't think so. If they do, we have a system to detect that.

It goes to all of the buildings and all of the offices. It is a two-way coaxial cable system, you may recall, so data goes in and data comes back out, and the same with television.

Mr. FAZIO. What output do you currently have? Is the C-Span cable system one of the outputs?

Mr. WHITE. Yes; and all of the commercial channels are on it.

Of course, the proceedings on the House Floor are televised on it, and now experimentally the Senate is about to go on.

Mr. FAZIO. Those are the outputs. The inputs, I assume, are all the commercial stations?

Mr. WHITE. That is right.

The cable goes to all of the buildings, and in all of the offices, virtually every office. It goes to the Supreme Court building, but does not go into the building except to our internal office since we maintain the building and, therefore, it connects to our data needs. But the Supreme Court is not a part of the cable system.

It does go to the Library of Congress. So, it is in a number of buildings of that nature.

ELECTRONICS SYSTEM MAINTENANCE

As you know, and as you said, we have actually 34 electronics people, technicians, engineers, and so forth; and they are involved in the maintenance of all of the systems on the Hill—not only that coaxial cable system, but our closed-circuit TV security system, the tunnel alarm system, the office intrusion alarm systems, the Capitol duress and emergency alarm system, the computer-controlled energy management system, the computer-controlled automated book conveyor system in the James Madison Memorial Library building, and so on and so on.

So, it is correct to say that we do have an extensive number of people doing this sort of thing.

Although we had the experience from installing the system on the House side—I am talking about the TV system—it was our office that, within the last 60 days, installed the temporary system for the experiment of television on the Senate Floor. So, we have all of the techniques and capacities here.

Mr. FAZIO. I would like to insert a question for the record relating to organization and staffing.

[The question and response follows:]

ORGANIZATIONAL STAFFING

Question. What is the organization staffing and expenses associated with the provision of all telecommunications services (TV, cable, etc.) by the Architect?

Response. The Electronics Engineering Division was established in 1974-75 in order to maintain the closed-circuit television (CCTV) surveillance system, the pack-

age x-ray inspection system, and the tunnel intrusion alarm system, all newly installed at that time in the Capital Complex of buildings. Since that time, the tasks assigned have been increased substantially to include: the design, installation and maintenace of the Cable Distribution (CATV) system orginally designed for televising floor proceedings of the House of Representatives and later extended to provide television, radio, data communications and other transmission facilities throughout the Capitol, House and Senate Office Buildings, and Library of Congress Buildings; multiple Office Intrusion Alarm Systems (OIAS); the maintenance of a Cable Alarm System (CAS) in the Senate Office Buildings for transmitting duress alarms, detecting fire and smoke and for other safety related purposes; computer-controlled Energy Monitoring and Book Conveyor System and Fire and Life Safety Systems installed in the James Madison Memorial Building. Similar computer-controlled energy management and life and fire safety systems are planned for inclusion in each of the other buildings in the Capitol Complex.

The following tables summarize the present staffing of the Electronics Engineering Division and associated costs. In addition to the personnel costs, an additional $842,700 is appropriated annually to provide for supplies, materials, and replacement parts for electronics systems throughout the Capitol Complex. Of that amount $150,000 was sequestered in fiscal year 1986 pursuant to the provisions of P.L. 99-177.

Electronic Engineering Division

Grade and title:	*Current salary*
Administration:	
GS 14, Head, electronic eng. division	$48,873
GS 13, Asst. head electronic eng. div.	40,105
GS 09, Administrative tech.	23,258
GS 05, Administrative assistant tech.	15,350
Total, administration (4)	127,586
Security branch:	
WS 11, Electronic tech. foreman	33,904
WG 08, Electronic tech. worker	22,027
WG 12, Electronic tech.	28,954
WG 12, Electronic tech.	28,954
WG 10, Electronic tech.	25,397
WG 08, Electronic tech. worker	21,174
WG 08, Electronic tech. worker	22,027
WG 08, Electronic tech. worker	20,362
Total security branch (8)	202,799
Control branch:	
WS 11, Electronic tech. foreman	35,152
WG 12, Electronic tech.	27,934
WG 12, Electronic tech.	27,934
WG 12, Electronic tech.	28,954
WG 11, Electronic tech.	26,645
WG 11, Electronic tech.	25,667
WG 08, Electronic tech. worker	22,027
Total, control branch (7)	194,313
Design branch:	
GS 12, Electronics tech.	34,781
WG 12, Electronic tech.	28,954
WG 11, Electronic tech.	26,645
WG 10, Electronic tech.	24,461
Total, design branch (4)	114,841
Cable TV branch:	
WS 11, Electronic tech. foreman	33,904
WS 09, Electronic tech. foreman	30,576
WG 12, Electronic tech.	28,954
WG 11, Electronic tech.	26,645
WG 10, Electronic tech.	26,333
WG 08, Electronic tech. worker	22,027
WG 08, Electronic tech. worker	22,027
WG 05, Electronic tech. helper	18,075
WG 05, Electronic tech. woker	18,075
Total, cable TV branch (9)	226,616
Installation branch:	
WS 11, Electronic tech. foreman	33,904

WG 11, Electronic tech.	26,645
Total, installation branch (2)	60,549
Total personnel compensation (34)	926,704

Electronic engineering division maintenance funds

Maintenance of electonics system	$842,700
Less: G-R-H sequestration	(150,000)
Total, maintenance of electonics system	692,700

DIFFERENCE IN HOUSE AND SENATE SYSTEMS

Mr. FAZIO. Did you use different approaches in the Senate and the House, in terms of how you proceeded?

Mr. WHITE. There is a difference in, as you know, on the House Floor one can speak from one of only 3 locations; whereas, on the Senate Floor each Senator is entitled to speak from his or her own desk, which means that the camera locations and capacity for focusing have to be at 100 different locations rather than just 3.

Now, they don't vary a great deal, but still it creates a slightly different problem.

Mr. FAZIO. How would you solve that? Not with 100 cameras, I am sure.

Mr. WHITE. We only have 6 cameras, but we will solve it ultimately through pre-focusing at set locations so if Senator number 63 stands up, you punch 63 into the system and the cameras focus on it.

Mr. THOMAS. If he is standing on the X on the floor, where he is required to be standing to be in focus.

Mr. WHITE. That creates lighting problems more than camera problems, because again on the House side the light intensity can be focused in a sense at the three locations where one speaks; whereas, on the Senate side, the entire floor must be more or less equally lit. Otherwise, one individual doesn't photograph as well as another individual, which may create some problems.

Mr. FAZIO. Certainly, no one wants to be in the shadows.

Mr. WHITE. That is right.

Other than that, it is a very similar installation.

NUMBER OF CABLE SYSTEM CHANNELS

Mr. FAZIO. How many channels do we have in our system now?

Mr. WHITE. We have 35 channels on the cable (CATV) system.

Mr. FAZIO. Those are channels that are currently assigned?

Mr. WHITE. Not all assigned. There are 17 assigned for TV use; 8 are assigned for House Information Systems' data use; 3 are assigned for the energy management control system, security data, and communications needs of our office—that is, the Architect of the Capitol—and the rest are unassigned.

I might say that the assignment is under the jurisdiction of Congressman Rose. As the chairman of the committee, under the Speaker, it was decided by the House when the system was installed that because the system emanated from the House Chamber that it came directly under the Speaker's jurisdiction.

SYSTEM JURISDICTION

Mr. FAZIO. So, it is not under the House Administration Committee; it is under a separate committee?

Mr. WHITE. That is correct.

Mr. FAZIO. What about the Senate system; how is that going to be managed?

Mr. WHITE. The Senate system is under the jurisdiction of the Senate Committee on Rules and Administration.

Mr. FAZIO. They have a committee that has responsibility, a standing committee.

Mr. WHITE. That is correct.

Mr. FAZIO. That has been decided.

Mr. WHITE. That is correct.

Well, I should say there is nothing finally decided yet because it is in an experimental stage. But that is the committee in front of which all the hearings have taken place, and it is the chairman of that committee that has met with Congressman Rose in what was established as an ad hoc Electronics Management Board for questions involving the cable system.

AD HOC COMMITTEE COORDINATION

Mr. FAZIO. To what degree do we share responsibility? The ad hoc electronic communication management system has been meeting to work out the problems between the Senate and the House. What kind of things are they getting into?

Mr. WHITE. Well, the problems that have arisen—first, maybe I should explain that because the coaxial cable system runs throughout the Hill, any connection into that cable system, let's say with a television set, will enable anyone to connect to channel 4 or 5 or 6 or 8 or whatever. Channel 3, as you know, is the one on which the House proceedings take place.

Mr. FAZIO. So, we assume the Senate will be watching channel 3 occasionally to see what is happening on the House Floor, and we will be able to watch the Senate Floor proceedings.

Mr. WHITE. Exactly.

First, I should say the cable was installed as a result of the House need, as a result of a decision to televise the proceedings on the House Floor. There has existed a semblance of a proprietary interest in that cable system by the House as a result.

The House, as you know, established certain rules of conduct by those who are engaged in activities on the cable—for example, a committee hearing and so on—that one couldn't use it for political purposes, for example, and various rules of that nature with which I know you are familiar.

When the Senate decided to have some experimental use on the Senate side, the question arose of whether they would follow the House rules. If they did not follow the House rules, then of course how could one say to a Congressman you can't do it when he can turn to the next channel and someone is doing it from the other side? So, that was the reason for the meeting, the establishment of this ad hoc joint group.

The group consists only really, in terms of Members of Congress, of Congressman Rose, and Senator Mathias, as Chairman of the

Senate Rules Committee. So they haven't made any—just really it has been a way of resolving——

SUPPORT SYSTEM COORDINATION

Mr. FAZIO. Of getting started and accommodating some of the rough spots.

Mr. WHITE. That is right.

As things began to develop, it became apparent to those of us involved in the support system, as it were, that problems of this nature were going to continue to occur, and that it seemed to some of us that it would be a wise idea for there to be some kind of joint House-Senate committee in that regard, although that hasn't been established yet, as you know.

Mr. FAZIO. It keeps popping up, though, in discussion.

Mr. WHITE. Yes.

The system is such—that is, the cable system is such—that there is a switching point called the head-end. That head-end, as it turns out, is located on the Senate side in the Russell Building, because the location of antennas for reception was best at that time in that location. Of course, as a result of that, there is some ambiguity as to who controls the head-end.

What has occurred, as a result of the need not to have on the House side transmissions which are available on the Senate side, one could accomplish that by another head-end, a completely separate head-end, so there could be joint use of the cable, if necessary, or some portions of it could be only seen on the Senate side.

Mr. FAZIO. Currently, under the system, everything would have to be seen on all channels?

CHANNEL REMOVAL OPTION

Mr. WHITE. Yes.

We have, however, removed one channel. It costs about $6,500 or $7,000 to remove one channel from the system. We have done that in one case in order to avoid a conflict. There is one channel which is seen on the Senate side that can't be seen on the House side.

Mr. FAZIO. Can you tell us what that is?

Mr. WHITE. It is the C-Span channel.

Mr. THOMAS. Why is there a conflict?

Mr. WHITE. Well, the conflict is that up to now the House, through its representatives, has not seen fit to permit C-Span on the cable on the House side. The Senate, after being approached, decided they would like to see C-Span; and so to avoid that conflict, we were able to pull that channel off electronically.

All of the 35 channels can be pulled off by the installation of a head-end, which would cost a quarter of a million dollars. There is a desire not to spend a quarter of a million dollars for another head-end.

Mr. FAZIO. But that is a possibility that is being explored at the present time?

Mr. WHITE. It is not being explored. It is well-known, however, that if there wanted to be—some portions, some channels on this cable must be common. For example, the energy management control, the three channels that are under our office must be common,

just as we have a common water system and sewer system and electrical system. So, on that basis, some will always be common. But they can all be separated if the House and Senate wanted to.

Mr. LEWIS. Mr. Chairman?

Mr. FAZIO. Mr. Lewis.

Mr. LEWIS. Mr. Chairman, I am not sure it is appropriate at this point to pursue in detail the questions that crop into my mind kind of rapid-fire relative to a channel we paid $6,000 or $7,000 to separate out.

Mr. FAZIO. Was it $6,000 or $7,000?

Mr. WHITE. About $7,000, I think.

Mr. LEWIS. I wonder if you could provide for the Chairman's review, when that decision was made, what some of the reasons were for such a decision, what committee made it; if not a committee, what individual? It may be we will want to pursue that as an illustration of problems we might have in dealing with this subject with the Senate over a period of time. Yet, I don't want to take a lot of time with the committee at this point.

Mr. FAZIO. Will you submit it for the record.

Mr. WHITE. Be glad to.

[The information follows:]

On December 23, 1985, the Chairman of the Senate Committee on Rules and Administration directed the Architect of the Capitol to distribute C-Span broadcasts to the Senate Office Buildings and Senate side of the Capitol. The Rules Committee Chairman also authorized an expenditure not to exceed $6,000 for this purpose.

The C-Span broadcasts were not extended to the House side of the Capitol or House Office Buildings pursuant to a decision to that effect made by the Chairman of the Speaker's Advisory Committee on Broadcasting.

CABLE SYSTEM USED FOR DATA TRANSMISSION

Mr. FAZIO. The cable system can be used for data communication; is that correct?

Mr. WHITE. That is correct.

Mr. FAZIO. It is being used to a certain degree?

Mr. WHITE. It is being used to some degree in that way now. As a matter of fact, when we talk about channels, the data processing, the data communications have virtually no limit as to the number of pieces of data that can be transmitted over the cable.

When we talk about channels, we are really talking about television channels.

Mr. FAZIO. Can each one be divided into data channels?

Mr. WHITE. Into many, many data channels.

Mr. FAZIO. How many exist on each station?

Mr. WHITE. Maybe a thousand. It is virtually unlimited for data processing.

Mr. FAZIO. What percent of the channels are now being used for data? We have eight for HIS, you said?

Mr. WHITE. Yes—there are eight.

Mr. FAZIO. Are they subdivided again?

Mr. WHITE. There are eight divided for data use. They are subdivided again. I don't think HIS is using more than one of those.

Mr. CARROLL. Just one.

Mr. WHITE. They are assigned and set aside for their use.

Mr. FAZIO. In effect, they could be taken back if somebody wanted?

Mr. WHITE. That is correct.

Mr. FAZIO. There was an assumption that we are going to be using the telephone switch system more as a data communicator in the future, more than we had anticipated.

Is that your understanding, as well?

Mr. WHITE. That is correct. That is my understanding.

BUILDINGS CONNECTED TO CABLE SYSTEM

Mr. FAZIO. You said it connected to the Supreme Court and the Library. Are there any buildings and agencies on the Hill, in the Legislative Branch, that are not connected? There are many in the Executive Branch that are connected, I assume.

Mr. WHITE. There aren't any—the only buildings that connect to our coaxial cable system are the Legislative Branch buildings on the Hill.

Mr. FAZIO. Is GPO included?

Mr. WHITE. No, GPO is not connected. They are really not on the Hill in the descriptive sense. They are not connected.

There is, as you mentioned, a fiber optics cable that we have that is connected between GPO and their various terminals over here, that we installed. As you may recall, we supply steam to the Government Printing Office through our steam tunnels. So, we had a tunnel; we had a conduit in effect available, and we ran the cable for them.

Mr. FAZIO. How do the people in other branches of government take it off the television system by buying cable access through C-Span? In other words, there is no direct cable hook-up?

Mr. WHITE. Not to us. If they have C-Span in some other place, they must get it off a cable or off the satellite directly, or some other way.

Mr. FAZIO. It must be off the satellites if they don't have a cable system. For example, in the D.C. area, I assume the Executive Branch gets Floor coverage from some satellite system.

Mr. WHITE. C-Span broadcasts it by satellite to local cable companies.

Mr. FAZIO. Are there other cable systems in the Executive Branch that you are aware of?

Mr. WHITE. I am not familiar with any of those, Mr. Chairman.

OTHER LEGISLATIVE BRANCH CABLE SYSTEMS

Mr. FAZIO. I was going to ask you about other cable systems that exist in the Legislative Branch.

Would you be responsible for operating and managing those?

Mr. WHITE. Yes.

We have the closed-circuit television system, for example, where all of the 108 or 110 cameras, or whatever the number is, are controlled, and that is a separate cable system.

I don't know whether you would call it a cable, but we have, for example, the office intrusion alarm system which is partly on a hard-wired system and partly on the coaxial cable. So, we have some systems of that nature.

Mr. FAZIO. Were these developed before we came up with the coaxial cable system we have been discussing? Is that why they are separate?

Mr. WHITE. Yes. The office intrusion alarm system, which began really as the tunnel intrusion alarm system, was installed before we had the coaxial cable.

There are also some other hard-wire systems on the Hill. For example, the Senate, their computer center and its distribution system is all hard-wire. They are not on our cable on the Senate side.

The Library of Congress has installed its own hard-wire system for data processing.

So, there are other systems on the Hill.

SYSTEM PROLIFERATION

Mr. FAZIO. Is this happening more frequently? Are we proliferating with these separate systems? Is there any reason why they couldn't all operate on the same system?

Mr. WHITE. There is no reason why they couldn't all operate on the same system.

Mr. FAZIO. Wouldn't it be easier to operate and maintain if we had one system?

Mr. WHITE. In my judgment, it would be.

Mr. FAZIO. Maybe cheaper?

Mr. WHITE. I believe it would be.

It is much easier, for example, if one has a coaxial cable, as we have, and if we want to connect from one office to another we can hook into the cable and come out at the other end in the other office, instead of running multiple wires from one office to another.

For example, on the Senate side, where there is hard-wire for their data processing, we have massive numbers of wires and cables. We have more or less run out of room now for installation of wires and cables, and they are beginning now to look at the coaxial cable as an auxiliary system, because the cables get bigger and bigger as you put more and more wires in them.

Some of that can be handled through fiber optics, but that has a way to go yet in terms of technological development before it is economically available.

Mr. FAZIO. If we were to start all over again, would we do it this way? We wouldn't do it on a piecemeal approach. We would have one system comprehensively implemented on the Hill.

Mr. WHITE. I think that would be the most logical thing to do. If it were one system that would enable various suppliers of equipment to hook into that system, just as now, for example, it is an oversimplification, but you can buy a Zenith television or RCA or whatever and you can plug it into the wall, and it works.

This is a more complicated system, but that would be the way in which it would be simplest, it seems, for everyone.

Mr. FAZIO. Security systems and everything else?

Mr. WHITE. Yes.

Mr. THOMAS. On that point, why has the Senate continued to run hard-wire connections rather than more of the coaxial?

SYSTEM CHANGEOVER DIFFICULTIES

Mr. WHITE. I believe it is because once you install a system like that, to begin to change it creates some obstacles, also. Then you have dual systems running in parallel. So, there is a hesitancy to do it.

At the time that that was done, the logic was that the coaxial cable system might not be as reliable at that time, which was back in——

Mr. THOMAS. Such as coaxial cable versus fiber optics?

Mr. WHITE. At that time, everybody was certain if you take two wires from this point and connect to that point, you have a connection. It was hard to argue with that, even though it was outdated, in my judgment, from the day it went in in terms of a distribution system.

Mr. THOMAS. On the House side, we were more willing to risk new technology?

Mr. WHITE. Yes.

I must say, it was not only the House side but the Library of Congress, as well. We had a number of meetings, and these decisions, I must say, were not made frivolously; neither were they made by a strong interest on the part of Members of the Senate or House, for example. A lot of this resulted from technical judgments made by technicians. To some degree I suppose the judgment was made because some of the technicians could be certain of one thing, and the technicians were a little more imaginative on the House side.

Mr. THOMAS. Not unlike telephone decisions that are being made now.

SYSTEM INCOMPATIBILITY CONCERNS

Mr. FAZIO. I wouldn't have let it go by, either.

There is a concern that Mr. Thomas and I share, and that is the impending incompatibility of some of these systems. They were implemented over time for reasons that appear to be technical. For whatever reason, we may end up with a series of incompatible systems.

Mr. WHITE. That is, of course, something that ought not to happen.

Mr. FAZIO. But it is happening, isn't it?

Mr. WHITE. I don't know. We are not knowledgable about all the details. But one thing is certain, I think of more importance than anything, is that the wiring system, the distribution system, ought to be such that anyone can connect into it.

Mr. FAZIO. That is what I am saying. Technically, we are already at a point where we have lost some of that ability because planning was not developed.

Mr. WHITE. That is right.

It does seem to me that what would be best—if I can go back 20 or 30 years, for the sake of an illustration, it used to be that when you had a telephone change or needed to have something done that involved modification to your telephone system, you had one place to call, and they did whatever they needed to do; and then you received the service, whatever it was.

Now it would be nice to come back to that—even though there are different people manufacturing the telephones, in effect as terminals instead of telephones, and as central processing units in other locations—but it would be nice to be able to achieve the same results in terms of a single place to go for service and to have that service then be offered in whatever way you want it. That is going to take some doing, I guess, but it would be nice to achieve that.

Mr. THOMAS. Mr. Chairman?

Mr. FAZIO. Yes, Mr. Thomas?

SINGLE SWTICHING ARRANGEMENT

Mr. THOMAS. On that point, although we can't turn the phone back to the phone company, isn't the second best, or maybe ultimately better than that, an arrangement in which you have a structure, an architecture, which can carry a number of different approaches and individuals; then can go out and customize what they need as long as it is compatible into that single architecture?

The attempt we are trying to move toward is a single-switching arrangement.

Mr. FAZIO. Is that what you mean by "architecture"?

Mr. THOMAS. Yes.

The structure itself, the physical operation, is such that any number of folks—it is a software adjustment that allows folks to plug into you, and sometimes by standing still the world comes back around to you; and that instead of imposing a monolithic uniform structure, which would have been required with either coaxial or with hard-wire, you can create a system which is compatible with a number of different approaches so that the transmission is compatible, not necessarily the hardware or the architecture.

Mr. WHITE. That is correct.

Mr. THOMAS. That is where we are attempting to move to get back to your one-stop operation, which would be it is all compatible and all works, and you can plug it into the same system; but you don't need each person to have a monolithic structure.

Mr. WHITE. That is correct.

Mr. THOMAS. That is where we are heading.

Mr. WHITE. That is exactly what I was——

Mr. THOMAS. That would be the ideal situation, because then when you digitize it, you can transmit voice or data. That is where we are trying to go.

Mr. WHITE. That is right.

LIBRARY OF CONGRESS CABLE SYSTEMS

Mr. FAZIO. Let me ask you about an area where there seems to be some overlap. The Library of Congress has its own cable systems, as you have indicated, and some technical personnel. You have technical personnel assigned on site at that agency, as I understand it.

How do we interact here? Is there duplication of effort? Are there potential cost savings? Getting back to my initial comment about you serving as the phone company, perhaps you could serve as the cable company as well. What is the possibility of having

somebody who is responsible for the overall cable distribution on the Hill?

Mr. WHITE. In terms of how it operates at the moment, the Library of Congress has some people that are pulling wires through the building and doing internal maintenance, as I understand it.

I may let Ray Carroll respond to that in a minute.

They don't do anything without our people knowing about it, and so they don't tear the building apart while they are doing it. I don't think it is duplication in the sense that we are not doing what they are doing. They are augmenting their needs.

Mr. FAZIO. Is it properly organized and managed? Perhaps there are not employees actually sitting around while others are working, but there appears to be some overlap. Is this another example of how things grew to occur over time?

Mr. WHITE. I think if we had the best of all worlds, you wouldn't do it that way. But I don't think it is working to anyone's detriment at the moment unless it begins to expand and people start making policy judgments or decisions which could adversely affect the assets of everybody.

For example, we won't permit them to install a conduit, metal conduit, through which to pull wires. Frankly, we are reaching the point in some instances where that is a necessity.

Mr. FAZIO. Sounds like the sheet metal workers and the electricians have reached an agreement.

Mr. WHITE. We do. But that is not because we want it; only because we want to protect the buildings from people whose goal is different from ours.

Mr. FAZIO. We want the best possible work, from people who are well qualified.

Mr. WHITE. Ray, would you like to comment on this, on the Library of Congress people?

GROWTH OF LIBRARY CABLE SYSTEMS

Mr. CARROLL. I think it is a matter of history, as the Chairman said. It just grew that way. We never had responsibility in our office for telecommunications, as such.

When things like the Madison Building were constructed, we designed paths and conduits for telecommunications to be installed, and they were then installed basically by the telephone company.

Mr. FAZIO. The cable system was also pre-planned?

Mr. CARROLL. By the Library. They had charge of their own computer installation, a fairly large one, in the Adams Building; and it is still there, parts of it.

What is in the Madison Building now is huge compared to what they had in the Adams Building. All of the wiring, to the computer center in the Madison Building was done by the Library staff, with our assistance, of course.

So, what you find are all the telephone wires below the floor in the conduits that we provided, and all the data cable wiring is up in the ceiling in the hollow plenum, that forms the ceiling of that building.

Mr. FAZIO. There is no problem with that?

Mr. CARROLL. No real problem. We assisted them in installing it, in effect.

CABLING INCLUDED IN MADISON BUILDING PLANS

Mr. FAZIO. It was planned that way in the architectural drawings and implemented that way?

Mr. CARROLL. In effect.

Mr. WHITE. Yes. We have worked very closely—the Library of Congress was, in effect, our client for the building, so we worked very closely with them so the building would be capable of serving their purposes as of the occupants.

Mr. THOMAS. On that point, if the building was built 10 or 15 years from now, you wouldn't worry about a dual system; you would put in a fiber optic cable.

Are we saying at the time that it was built also dictated the way in which it was done; that is, both the coaxial and the telephone lines?

Mr. CARROLL. This is a matter of time. The coaxial cable we designed and installed in the House, that you now are using, came after the Madison Building design, even though the Madison Building wasn't constructed exactly on time, as you may remember. It took a good many years to get it started and get it occupied.

In the meantime, we literally invented, or designed, a cable system which was ahead of its time, at the time, and only now, in the last five years or so, equipment is beginning to be made in mass production to accommodate a coaxial cable of the nature that we have.

Mr. THOMAS. So, in part, it was our ability in that one area to leap ahead of design time that required the separate operation. In hindsight, it was useful in terms of the additional capacity they were carrying, but it would not have ordinarily been built into the architecture of the building at the time that the architecture was laid down.

Mr. CARROLL. Well, I think your comment about what may happen in the future is valid. Given another 10 years, we will probably have major fiber optic systems. If we would have known about cable when we designed the Madison Building, we would have designed it into the building at that time.

AOC PARTICIPATION IN COST ESTIMATING

Mr. FAZIO. As we contemplate the procurement of different switches, different systems, communication for the various agencies that you work with, have you always been involved in estimating the construction costs? Have those always been tasks that you were given? Have you always been able to come up with the kind of information that we have needed to make a total judgment?

Mr. WHITE. Let me say, it hasn't always been asked of us in detail. And, of course, when it has been asked we have offered it based upon what information we had available on which to make an estimate.

As you know, I have had problems in the past from estimating when I didn't know what I was estimating. So we are pretty cautious about that.

But, for example, with the various vendors that were being considered on the House side based upon what was given to us in the form of information regarding what their needs were—and I am not sure their needs were that specific—we made some estimates as to what the various costs would be depending upon which vendor one went to in terms of space allocation, modifications of the space, air conditioning, and all of the rest of the things that might be needed. So, we have done that.

AOC PARTICIPATION IN OTHER INSTALLATION

Mr. FAZIO. You have done that for the Senate and the Library of Congress and all these other entities?

Mr. WHITE. No, we haven't done it for the Senate.

Mr. FAZIO. You haven't?

Mr. WHITE. No.

I think there have been some broad figures given, but nothing of any specific nature.

Mr. FAZIO. Have you been asked and just haven't had time?

Mr. WHITE. We haven't been asked specifically.

Mr. FAZIO. I will insert a question to be answered for the record concerning cost estimates for construction and cabling.

[The question and response follows:]

CONSTRUCTION AND CABLING COSTS

Question. In connection with the planned procurement of a telephone switch by the House, you provided cost estimates for construction and cabling. What were these costs?

Response. The following table illustrates the estimated costs that would have to be borne by the Architect of the Capitol to accommodate the installation of new telecommunications equipment in the House side of the Capitol and House Office Buildings. Specific costs cannot be estimated until the exact design of the proposed installation is known. The costs include equipment space preparation, but wiring and equipment costs will be borne by the vendors.

Item	Vendor			
	AT&T	NTI No. 2	NTI No. 3	Rolm
Building Raceways	$340,500	$340,500	$340,500	$340,500
Feeder Conduits	206,700	211,200	77,200	110,600
Equipment Space	3,428,350	640,000	1,260,000	1,202,400
Closets				40,000
Total	$3,975,500	$1,191,700	$1,677,700	$1,693,500

SYSTEM PROVIDED IN LIBRARY RENOVATION PROJECT

Mr. FAZIO. What about the Library, as we renovate those facilities over there?

Mr. WHITE. The renovation we are doing in the Library will provide conduit paths and cable trays and all of those things for the distribution system.

Mr. FAZIO. That has been built in the design of the restoration?

Mr. WHITE. That has been built into the design.

Mr. FAZIO. What about the new system?

Mr. WHITE. We haven't done anything about a new system in terms of modifications to the building. It is my understanding that what is being considered there by the Library is what apparently has been considered on the Senate side; that is to say, the use of existing terminal facilities or rooms that would have different equipment put in them on the presumption that no additional costs would be required.

Mr. FAZIO. Which is an assumption that the vendor who is currently servicing them would service them in the future; is that correct?

Mr. WHITE. Apparently, yes.

SPACE REQUIRED FOR HOUSE SYSTEM

Mr. FAZIO. How much space is required on Capitol Hill for the new House telephone system?

Mr. WHITE. Well, again that depends on which vendor one selects.

Mr. FAZIO. If I said the House side, I guess I was referring by implication to AT&T.

Mr. WHITE. In terms of space.

Mr. FAZIO. How many locations? We are also interested in knowing square footage in each place and all that sort of thing.

Mr. WHITE. The AT&T proposal, from our understanding—please bear in mind this is data given to us on which we have acted——

Mr. FAZIO. Sure. Each bidder would have a different amount of space.

Mr. WHITE. It is, in round numbers, 7,000 square feet of space in various buildings. So much in the Capitol building, so much in the Cannon building, so much in Annex I, so much in Annex II, in the underground garage—some area was presumed to be available there. It would eliminate some parking spaces.

Mr. FAZIO. Have you already done some thinking about where this would go?

Mr. WHITE. We have done some thinking about it, yes.

SPACE LOCATIONS DIFFICULT TO IDENTIFY

Mr. FAZIO. Is it, from your standpoint, an ideal location for the facilities?

Mr. WHITE. I don't know what you mean by "ideal." It is space that is used now for garage purposes.

Mr. FAZIO. That is basically what you are working with?

Mr. WHITE. That would be almost 4,000 square feet. So, it is going to eliminate some parking, and it would mean we have to go in and do some heating and air conditioning separately. But it is ideal from our view in that it doesn't affect the architecture in any way.

Mr. CARROLL. I might say, on the House side particularly, we have worked very closely with the staff in trying to determine where such space could be made available.

Mr. FAZIO. Do you need more than one location, or is it just one central switch that you are going to have operating?

Mr. CARROLL. There certainly would be more than one location depending on where you are referring to. At the moment, I can't determine those locations. I am in the same boat. I think we all are.

For instance, you say the United States Capitol; where do you think we are going to find 600 square feet in the United States Capitol to put anything? But that is what the program says. It is that kind of question that has to be eventually answered.

POSSIBLE GARAGE LOCATIONS

Mr. CARROLL. But the underground garages were pinpointed and I think the key ingredient is that could be a logical location for a switch on the House side.

Mr. FAZIO. It is really at this point not a case in the sense of having space to be made available, we have it, we just have to modify it.

Mr. WHITE. That is correct.

Mr. FAZIO. And heating, cooling, and monitoring the temperature is basically the problem.

Mr. WHITE. That is right. Nonetheless, these proposals don't presume construction of a new building anywhere. It is just space taken from one use and transferring it to another.

SPACE NEEDED FOR CABLE CONDUIT

Mr. FAZIO. Is there space for the cables in the existing conduits?

Mr. WHITE. Yes, but I must say we have virtually run out of space in our conduits. We are probably going to have to install more conduits and in one building, as you may recall, namely the Longworth Building, we are in the process now of providing passageways which don't exist there at all either horizontally or vertically.

Mr. FAZIO. That is existing capability. We are overstressed as it is?

Mr. WHITE. That is right.

Mr. FAZIO. There are wires running down the halls with tape and all.

Mr. WHITE. And the new system we are installing, as you may recall, will have the capacity to do these kinds of things.

Mr. FAZIO. You are aware of the fact that we have had to slow down our decision on the restoration, the plumbing and the electrical work in the two older House office buildings. It was in both Cannon and Longworth. Weren't they up for some upgrades?

Mr. WHITE. Largely in the Longworth Building.

Mr. FAZIO. Is the Cannon included at some point?

Mr. WHITE. Not for electrical distribution I don't believe. Did we?

Mr. CARROLL. We do need it—we are biding our time. We don't do everything at once.

Mr. FAZIO. Are we proceeding?

Mr. WHITE. Yes, we are proceeding, but it is more to recognize that the provision of new spaces for cable will necessitate our doing something there in order to provide passageways.

Mr. FAZIO. There aren't passageways for that, is that what you are saying?

Mr. WHITE. That is right.

EXISTING TELEPHONE CIRCUIT

Mr. FAZIO. We are talking about maintenance of existing systems. What about the existing passageways for telephones?

Mr. WHITE. You can't put anything more in those passageways.

Mr. FAZIO. But you are talking about moving from the existing telephone company, from C&P to AT&T. What happens to the conduits?

Mr. WHITE. Bear in mind that you will have to have two systems in operation simultaneously. That is to say you are going to have to leave the existing system in place while the new system is installed, and during that period there will be lots of cables running up and down corridors as we have done in other places. The Supreme Court is a good example of that. You can't cut one off until the other one is ready and tested and available, because they are complicated.

Mr. FAZIO. We will have an external system before we have an internal system and they will be meshed at some point?

Mr. WHITE. That is correct.

Mr. FAZIO. I don't know how you are going to do that but I have to assume it is the plan.

Mr. WHITE. That is right. We were involved in it at the Supreme Court.

Mr. FAZIO. What did you have there that was equivalent?

Mr. CARROLL. It is AT&T system 85, but it is a small system. Only 300 lines or so. We were not talking about 10,000. But we literally had a spaghetti mess over there for many months.

Mr. FAZIO. It is a test though, isn't it really, and one that will be somewhat inconvenient. But on the other hand, I suppose you have to conclude if you are going to bother to go to bid, this was anticipated.

Mr. WHITE. That is right.

Mr. FAZIO. All right.

Any other questions?

TELEPHONE SYSTEM DUPLICATION DURING SWITCHOVER

Mr. THOMAS. Was there discussion that in terms of the House switchover of the telephone lines we would have lines running down the halls? Was that a statement that was made?

Mr. FAZIO. Yes.

Mr. THOMAS. By whom?

Mr. WHITE. Me.

Mr. THOMAS. On what basis?

Mr. WHITE. Well, there comes a time when you have to install one system and still have the other one in operation. It takes time to install it.

FLASH CUTOVER

Mr. THOMAS. We were talking about a flash cutover and that was part of a lot of hours of discussion in terms of which company we were going with and there was never an indication that the way

the cutover would be made was that there would be lines running down the hall.

Mr. WHITE. There will be a flash cutover.

Mr. FAZIO. What does that mean?

Mr. CARROLL. It is not an instantaneous cutover in that you have two systems. The new one is completely installed and operating and someday you say, as of today, you don't use the old instrument, now you use the new one and it is completely operational and the computer is running and everything is functioning.

Mr. FAZIO. So it isn't the day you make the billing change and you start using a different system. I would like to know more about that. Mr. Thomas is asking how do we get there from here?

Mr. CARROLL. The other part of the story is when you deal with new vendors like Rolm and Northern Telecomm, they are not familiar with the existing wiring systems in the building and because they want high speed digital transmission they don't trust existing systems. So their first reaction is to take out everything that is in there. In fact, because it doesn't belong to them, it belongs to us or to C&P Telephone, so it has to come out, and they are going to put new in.

But you can't put new in the same conduits that the old is in because the conduits are full.

Mr. FAZIO. Or shut the place down?

Mr. CARROLL. You have to find a way to run conduits and new wiring in parallel with the old wiring.

Mr. FAZIO. I see. This is done, I assume, in other situations here in town, right?

Mr. CARROLL. It is.

TELEPHONE SWITCHOVER COMMON PRACTICE

Mr. FAZIO. We have had many organizations changing from one vendor to the other. It is not an unprecedented situation by any means.

Mr. WHITE. No, it isn't. To avoid the cable running up and down the hallways, if there is new conduit cable and you run the new system in the new conduit, then when the old system is abandoned, you can either leave the wires in the old conduit or pull them out and use the conduit for some future need, but at some point there needs to be two systems in existence.

Mr. THOMAS. My understanding--we are going to have to go back and get testimony to understand it--when we are talking about a flash cut in its going proposal, the old system to the new, in terms of the switch. But that the instruments themselves and the wiring changeover will be done in a phased fashion moving through the building because people will be learning the use of the new instruments and then they will be installed in a phased-in fashion.

There won't be this instant changeover of all of the lines. It will be the switch that will be the flash in procedure and then you will have an ordinary changing of the instruments and this is one of the things we discussed in great detail with the various companies as to how it would be done.

I am just—what I am reacting to is your description of what is going to occur and all the hours I spent working with the compa-

nies to make sure that didn't occur—I am going to send somebody over to you so they can explain to you what the system is that we are talking about doing because it is not the one you just described.

METHOD OF VENDOR SWITCHOVER

Mr. WHITE. Maybe we are describing the same system in different words.

The instrumentation that you are describing will occur just as you have described it.

If the new vendor or the new supplier will accept the existing wiring system which is very doubtful, then at some point either all at one time or little by little, there have to be—has to be more than one pathway because the existing pathway has to continue until changeover is done to the new one. Those pathways are wires of some kind or cables or——

Mr. FAZIO. And you are saying there is no space in the conduits to provide additional wires?

Mr. WHITE. That is right. That can be done gradually as you describe it, Mr. Thomas, but little by little as it is done there have to be two pathways.

Unless they are willing to accept the existing one which they may, but if they do then what we are saying is not going to be valid.

Mr. FAZIO. Is that a proprietary question? Is that pathway ours or is it C&P's?

Mr. CARROLL. The pathway belongs to us. The wires belong to C&P.

Mr. FAZIO. If a new vendor were going to use the wires, would they have to purchase them?

Mr. WHITE. I am not sure.

Mr. CARROLL. In effect, yes.

Mr. THOMAS. Mr. Chairman, I think we ought—if we go off on this path and begin creating a record which there is a great amount of falsity in, I think we better call in experts who may be in the room to discuss this changeover because we dealt with sometime about the trunk lines and shift of the trunk lines, the number of lines needed per phone, versus the old number of lines needed per phone and it was part of the understanding and agreement that what you are describing will not occur.

If what you are saying is going to occur, then I think either Susan ought to come up and talk about what it is we spent many hours discussing or somebody else so that we can get a factual statement on the record as to what is going to occur.

We are going down a path here which I think is factually incorrect.

If I am wrong, I would like to be corrected.

Mr. FAZIO. I am going down a path only in the pursuit of inquiry, but at this point we should request for the record any other information from any Committees, agencies, or vendors that would further elaborate on the points that have already been made.

Would that satisfy you, Bill, at this point?

Mr. THOMAS. That is fine, but if we continue to discuss what it is we are doing without factual statements that were agreed up contractually, I think we are going down the wrong road.

Mr. FAZIO. We will place that information in the record.

[CLERK'S NOTE.—The Architect of the Capitol provided the information for the record:]

It is the understanding of this office that the existing wiring will not be used as part of the new system since the existing wiring will be required to maintain the current system in operation while the new system is being installed. New risers, in particular, will be required to be installed in parallel with existing risers because of the need for a greater number of pairs of wires and a need, in general, to change the size of wire and quality of intallation if data is to be transmitted. The individual pairs of wires to each telephone set will also be changed, as we understand the proposal, either on a mass outage basis or on a progressive outage basis, depending upon the circumstances encountered in each building.

NEED FOR ACC INVOLVEMENT IN COORDINATION

Mr. FAZIO. The significant point is that we have the Architect here before us who is charged with making the structural changes in the building. Somehow you are not in the link as Mr. Thomas understands it.

Mr. WHITE. Well, I am expressing our understanding and our experience in other instances.

Now, as I qualified my statement, Mr. Thomas, to say that up to now we have not experienced the acceptance of the existing wiring system by the new entity.

If the new entity—in this case, AT&T—will accept the existing wiring system then what I have described won't occur. I think that—I would be interested in discovering that.

Mr. FAZIO. We don't have any purpose in further pursuit of this. It is obvious some clarification is needed. There are other entities in the Legislative Branch that have information that apparently is not available to you at this time.

So let's do as I indicated and have all of those entities place in the record whatever information that might further enlighten us.

Are there any other questions?

This is a basic question we have asked others. Essentially we are seeking your opinion about the advantages and disadvantages of the House joining with other legislative agencies in a common universal cable and telecommunication system.

We have talked about that, but I would be happy to have you expand on it.

UNIVERSAL LEGISLATIVE BRANCH SYSTEM

Mr. WHITE. Let me respond by saying, Mr. Chairman, that in my judgment it would be very simple, the simplest way to finally end up—it may not be simple to get there, but it would be if the Congress or the House, talking about the House now, were to control through its agents the distribution system, the conduits, everything, so that as we discussed earlier, whoever comes in can plug in with whatever they want to and in that way it seems to me you have the best of all worlds.

It is my understanding that the Library has made some detailed investigation into a so-called universal wiring system that would be available to anybody or most people that could——

Mr. FAZIO. Are you saying that each agency should operate an independent switch?

We have been talking about a different direction, to be frank, going in the direction of at least contemplating a common approach.

Mr. WHITE. No. I believe that.

Mr. FAZIO. Do you think each individual area, Senate, House, should do their own thing?

Mr. WHITE. In my judgment, it would be simplest if there were a single entity, as you described in our opening remarks, some congressional telephone company in effect.

Mr. FAZIO. Right.

Mr. WHITE. I think that would be the way, the most expedient way to resolve future problems.

Mr. FAZIO. I have some additional questions on this subject for the record.

[The questions and responses follow:]

QUESTIONS FOR THE RECORD

Question. What economies, if any, do you consider possible by a consolidated system?

Response. Economies that can be achieved by having a consolidated system are difficult to predict since each jurisdiction has not firmly estalished manpower or maintenance requirements for separate systems. Howerver, it can be predicted that less manpower and overhead will be required with a consolidated system. Mass purchasing of spare parts and replacement equipment will result in lower cost. Maintenance problems will be considerably less complicated if a common wiring system and connectivity is achieved. Security concerns can be better addressed if only one group of maintenance personnel exists rather than multiple groups.

Question. What would be your views concerning methods for achieving and managing a consolidated cable system telecommunications for the Congress and its agencies?

Response. A control Board could be established, that would include representatives of each of the jurisdictions that would establish policy and have oversight responsibility for telecommunications operations. This Board would then report to the Congress in a unified manner when seeking funds for changes or expansion and would also provide for a single office for Members to contact when requesting service.

POSSIBILITY OF AOC PARTICIPATION IN SYSTEM

Mr. FAZIO. Would you be willing—and interested in taking on the responsibility of providing the technical capability, not necessarily the management although that might also be appropriate, to operate and maintain a Legislative Branch system since you have the staff.

Mr. WHITE. Yes, of course. As you know, Mr. Chairman, I do whatever the Congress tells me to. I would be happy to——

Mr. FAZIO. And more at times.

Mr. THOMAS. I would have been shocked if you had said no.

Mr. FAZIO. There are times, though, when he shows a great deal of foresight and wisdom and says no.

Mr. WHITE. But we are not looking for more things to do. We are going to do whatever we are asked to do.

MANAGEMENT ENTITY REQUIRED

Mr. FAZIO. That kind of entity, whether you handle it or whether some new entity is established, would be a logical management mechanism.

Mr. WHITE. That is right. Let's take the TV as an example. We installed the TV on the House Floor, but it is now operated by the Clerk. These things can be modified as time goes on, depending upon what the judgments are by the people at the time.

We are installing the TV on the Senate side, it will be operated by the Senate recording studio. So there are all kinds of ways in which to do this.

CLARIFICATION OF TWO SYSTEM OPTIONS

Mr. THOMAS. Mr. Chairman, on that point, I just want a clarification of Mr. White's thinking on this. You were talking about the Library of Congress in terms of their attempts to set up wiring procedures that they feel most appropriate to their needs.

Would you say then—this is where I need clarification in terms of the chairman's and your discussion—would you say that the ideal situation would be that there is a central agency that assesses the needs of the Library of Congress and provides it with the wiring structure that the central agency thinks the Library needs, and therefore you have an overall system?

Or is it preferable to have a system which is a central system into which these other agencies structuring their own needs can plug into for complete access?

That is the two different approaches.

Mr. FAZIO. Good question. Thank you for putting it in that context.

Mr. THOMAS. And both were talked about as we went through here. The chairman is talking about the former, and I am talking about the latter.

DIRECTION OF SYSTEM DECISIONS

Mr. FAZIO. We can go either way. We are both interested in honest opinions of what would work.

Mr. THOMAS. I want to know what Mr. White thinks.

Mr. WHITE. I think technically in terms of maintenance and so on, either one of those approaches would work. To say that one is more efficient or less costly than the other would be very difficult, it seems to me, from what we know up to now.

I suppose that kind of decision would best be made on the basis of the distinguishing characteristics of the various agencies and what their internal needs might be that are substantially different than other agencies.

If they are different enough, but that they can plug in, in a compatible way, then it probably makes more sense for them to do it on their own.

Whereas, if they are very much the same, then it seems to me the entire central operation is best.

Mr. THOMAS. But I think with this technology, that psychology is sometimes as important as the hardware itself. Either system will

work. But if an agency feels that its network is imposed upon it, somehow it doesn't work as well as the one that they created themselves.

Technically, they probably both work, but I think psychologically, it is significant. One of the greatest decisions I ever made was this business of telephones for members. Why? Because if something doesn't quite work right for the next 10 years, they will pick up the phone and call me.

Mr. FAZIO. Thinking it will make it work.

MODULAR SYSTEM FOR AGENCY USE

Mr. THOMAS. Yes, and so if it is possible to have the modular, the plug in from each agency creating its own system for its own needs, and it works, I think in the long run, it might be more cost-effective, because each one is streamlining based upon the structure that it is in and gets only what it needs.

It may not necessarily be true, because of duplication of operation of each one design they think is different, but when you look at it, it is not that much different than somebody else's.

But in terms of satisfaction of service rendered, that is a component which you may not be able to actually put a single dollar and cent value on, but in the long run, in terms of efficiency and making the system work, I think it has high value.

Mr. WHITE. That is certainly a factor that needs to be taken into account.

Mr. FAZIO. If you have other thoughts George, about the implications of these two approaches, I would be appreciative of any comments you might want to provide.

CONCLUSION OF TESTIMONY

Mr. FAZIO. I appreciate your testimony, thank you very much.

I might say at this point that the next group to come before us, and those that come before us tomorrow, are directed at trying to get that kind of question, Mr. Thomas.

Mr. THOMAS. Right.

Mr. FAZIO. Yes. Thank you very much.

Mr. WHITE. Thank you.

MONDAY, APRIL 28, 1986.

GENERAL SERVICES ADMINISTRATION

WITNESSES

DR. BERNARD J. BENNINGTON, DEPUTY COMMISSIONER FOR TELECOMMUNICATIONS, OFFICE OF INFORMATION RESOURCES MANAGEMENT

FRANK DONALDSON, DIRECTOR, WASHINGTON INTERAGENCY TELECOMMUNICATIONS SYSTEMS

Mr. FAZIO. We will now hear testimony from witnesses from the General Services Administration.

I will provide some background information on GSA's function as it relates to telecommunications. The GSA Office of Information Resources Management is the general provider of telecommunications for the Federal Government. It provides the Federal Telecommunications System for long distance telecommunications and consolidated local telephone services in major cities to support the Federal agencies.

The GSA has competitively procured a number of telephone systems throughout the Nation.

The GSA is in the process of acquiring a replacement for the consolidated telephone system serving Washington, D.C. This project is called the Washington Interagency Telecommunications System, WITS, which services the Washington, D.C. area.

It is also in the process of competitive acquisition of a replacement for the nationwide FTS.

INTRODUCTION OF WITNESSES

Mr. FAZIO. Dr. Bernard J. Bennington, the Deputy Commissioner for Telecommunications, and Mr. Frank Donaldson, the WITS project manager, are here to enlighten us on their plans.

We appreciate your appearance this afternoon. If you have a comment you would like to make, either in a formal statement or remarks for discussion purposes, please proceed.

Mr. BENNINGTON. Thank you, Mr. Chairman. We thank you for the chance to come and talk about what GSA is doing. GSA is involved in so many aspects of telecommunications, I was presumptuous to put together about a five-minute prepared opening statement, if I could read that in, than I will not leave anything out, and that concerns me, that I would miss something that we were working on.

Mr. FAZIO. That's fine.

Mr. BENNINGTON. Thank you.

STATEMENT OF DR. BENNINGTON

The General Services Administration has a major role in telecommunication procurement in the government, dating back over 35 years.

We have responsibilities both as service providers and government-wide managers of telecommunications. Under our government-wide management role we promulgate policies, regulations, and standards governing telecommunications procurement.

FEDERAL TELECOMMUNICATIONS SYSTEM

Under our service mission we operate the Federal telecommunication system—the FTS—the largest private network anywhere in the world.

As currently configured the FTS is a nationwide telecommunications system to provide long distance and local service to more than two thirds of the civilian work force of the Federal Government.

Our local service allows our customers to communicate within their buildings and in their immediate metropolitan areas, including access to their local telephone companies to reach non-government numbers. Our long distance service allows them to communicate between metropolitan areas.

The FTS serves the contiguous United States, Alaska, Hawaii, Puerto Rico, and the Virgin Islands. It serves a twofold mission.

First, to provide cost-effective communication to its 1.3 million users, and second, to provide communication in times of emergency. It is also engineered to provide secure communications in certain areas; and, in addition, we are the implementors of Federal secure telephones to allow complete protection of communication.

In terms of size, the FTS is seven times larger than the nearest private sector systems, namely those of General Electric and General Motors. In fact, the FTS is as large as the sum of the 17 largest private systems in North America.

In terms of cost savings, the aggregation of so much traffic has allowed us to gain major economies of scale in the past, resulting in savings in excess of $1.25 billion during the 1970's; and even today during the uncertainties of divestiture and deregulation, our savings in fiscal year 1985 represented an effective discount of more than 18 percent below comparable offerings available to our subscribers from public networks.

We provide FTS service through a variety of contractors, no fewer than six in our long distance program and almost 100 in our local service program. While relying heavily upon industry to provide the necessary resources to implement, operate and manage our system, we engineer and manage the services through a highly skilled central staff of almost 250 persons and a regional staff in excess of 1,000 persons.

VOICE AND DATA SERVICES

In addition to providing local and long distance voice services, we are also one of the nation's largest data systems, low speed

switched data communication representing more than 15 percent of our traffic.

The integration of responsibility for providing both voice and data is a tradition with a long history in the Federal Communications Commission, and the responsibilities for voice and data are firmly integrated within GSA in the information and resources management service.

In purchasing replacement systems, we are going the final step to integrate technologically the provision of voice and data services. With 23 years of experience in managing telecommunications successfully we can clearly state that the 1980's have brought us unique problems but also unique opportunities. We have undertaken a succession of actions in the 1980's to manage divestiture and deregulation and take advantage of competition.

COST SAVINGS REALIZED

In the long distance service we have aggressively competed our transmission media, resulting in accumulated cost savings in excess of $76 million over the last four years.

We have replaced operators with computer-like switches, to allow our subscribers to reach any number in the United States without operation intervention, at a total savings of over $29 million in the last four years. And we have recovered almost $20 million in additional savings from fine tuning the network.

In the local service we began competing our switches as early as 1977 and to date have replaced 180 for a total savings of more than $10 million in the last four years. We have reduced operator services to only those essential, for an additional savings of almost $24 million and have closed down services better met directly by the private sector, such as facsimile communication, for a savings of $4 million.

These cost saving activities do not include our recent contracts to purchase telephones and other customer premise equipment and services. Savings of as much as 65 cents on the dollar are being realized, with total savings over the 5 year life of the program expected to be $176 million.

The advantages of these cost reductions are self evident though, in truth they have allowed us to do little more than stay abreast of the constant cycle of price increases we have seen as the result of divestiture.

COMPLEX TECHNOLOGY

Within these cost reduction efforts, however, have come lessons learned more slowly and painfully, as we come to terms with a much more complicated industry:

Complicated by rapidly changing technology that brings us new products and services.

By having to manage a wide variety of suppliers instead of the single bell system.

By being faced with unpredictable prices from the industry—both regulated and market determined, and,

By having to deal with an industry in the throes of learning to work with itself in it's restructured form, moving from total regulation to substantial competition.

This complexity has inevitably required more skilled staff—not just larger numbers but smarter, more flexible staff able to grasp the opportunities available in the marketplace:

More to carry out acquisitions; more to manage the resulting purchases; more to manage multiple vendors rather than a single supplier, and, smarter to deal with new technology.

Although, in general, the additional staff are paid for through cost savings, we are creating a real problem due to the scarcity of people. In the technical areas we compete not only with the private sector but within the government, and in the procurement area it is proving impossible to get experienced staff.

This is not just our story. This is the story of all managers of large systems including large corporations. However, we have an added dimension of complexity that they do not have, in that we cannot reduce competition as an expedient way of solving management complexity, nor can we attract technical and managerial staff with the flexibility of our private sector counterparts.

But in spite of this, our record is creditable and we can look with pride at what we have done in the first half of the 1980's.

In the second half of the 1980's we are concentrating on replacing all of our services competitively.

SELF RELIANCE URGED

The watchword of the large telecommunications user in these maturing years of divestiture and deregulation is "B.Y.O.B."—"Be Your Own Bell".

This implies that to take complete advantage of the new telecommunications technology and industry, large users have to become their own phone company, making their own decisions and taking advantage of bargains in the marketplace. In replacing our aged legacy of bell systems at GSA, we are able to go further than the philosophy of "Be Your Own Bell" to one of "Buy Our Own Bell".

We can do this because we are uniquely large enough. Industry has the technology, management capability, staff, and capital.

We have the huge quantities of aggregated traffic and hence have the market leverage to have industry create for us our own phone companies. Thus, we can take advantage of available cost savings while not having to management talent.

GSA's role remains where it's strength lies, namely, in the execution and management of large procurements. This is our business. This is what we do best.

Our major replacement projects are known as: FTS2000, which will replace our long distance services. The aggregated switch procurement which will replace our local service outside of Washington, D.C. and the Washington interagency telecommunication system which will replace our local service here in Washington.

FTS2000 will provide voice, low and high speed data, and even video services to our long distance customers. The procurement, begun in 1985, will see an award in 1987, and transition out of the current system by 1990.

The aggregated switch procurement is being accomplished in ten separate regional procurements which encompass integrated voice and data local services. The first of these is being implemented in our Boston region and nine switches are already in place.

By September our New England users will have access to first-class communications, and other regions will follow in turn to complete the program by 1990.

The Washington interagency telecommunication system will also be a first-class integrated voice and data system serving our customers here in Washington, D.C.

As a result of these replacement projects, by 1990 all of our customers nationwide will have access to first-class telecommunications, allowing them to take advantage of any new office applications as they become available to improve productivity.

I brought with me the program manager for the Washington Interagency Telecommunications System, Mr. Frank Donaldson, he can answer any questions specifically about that project.

Also, with your permission, he has a brief description of the project that he would like to cover.

Mr. FAZIO. Mr. Donaldson, would you like to make a statement at this time?

Please proceed.

STATEMENT OF MR. DONALDSON

Mr. DONALDSON. In describing the new Washington Interagency Telecommunications System, I must first discuss the general requirements established by the current system. In Washington today, we have the world's largest Centrex System Network, servicing over 260,000 Federal workers.

This system provides seven-digit dialing to and from all telephones on the system without incurring message unit charges. In addition, many agencies served by the same telephone central office enjoy common features, such as call transfer and abbreviated dialing among different buildings.

When the new Washington Interagency Telecommunications System is implemented, it will be the largest, private, metropolitan area, digital switching system, providing service to Federal customers.

The new system will provide digital city-wide interconnection and allow system-wide calling without incurring message units within the network; not just in particular buildings like some new systems. Moreover, the new network will provide a transparent, end-to-end voice/data service within the city for our customer agencies.

DESCRIPTION OF SERVICES OF WITS

The Washington Interagency Telecommunications System will offer customers three levels of service:

The gateway to the Federal Telecommunications System and to other long distance services; the city-wide network; and the delivery of customer services in Federal buildings.

How did the program evolve?

In 1980, the Washington Telecommunications Interagency Committee was established by GSA to research the problems with communications in the city. The Committee was made up of senior level communications experts from seven large agencies.

The Committee was chartered to investigate the problems with the current Centrex Systems and make a replacement recommendation to GSA.

During the period, seven of the largest telecommunications vendors in the country addressed the Committee to explain their approaches and solutions to the problems in Washington. After almost two years of study, the Committee made some recommendations:

That an engineering study be performed, and that an implementation group be established, made up of representatives from our customer agencies.

The Committee found the current system to be expensive when compared to the new digital technology. In addition, the new system will provide usage and performance data not available today.

Another problem with the current system is that we share it with commercial businesses and residential users. Occasionally, some of our customers experience dial tone delay and call completion problems from traffic increases due to events such as the recent demand for 3,000 Bruce Springsteen's concert tickets. This increase in traffic literally locked up some government Centrex Systems for several hours.

Our economic analysis indicates that the new system will cost a conservative 25 percent less than we are spending today over the 10-year contract period.

The new system will provide basic telephone service for those customers that want only basic telephone service and price it accordingly. However, it will also offer integrated voice and data service, for our data customers.

There will be centralized system management with a single contractor providing end-to-end service including telephone instruments. We will have one contractor to deal with in getting our requirements satisfied.

Our acquisition strategy is to promote maximum competition and favor no one vendor. We will simply state our needs and let the competitive process work.

It is obvious to us that the telecommunications marketplace is becoming a buyer's market and along with the fact that digital transport and switching are decreasing in cost, we expect to provide more services to our customers at a lower cost.

In addition, various types of cable and wiring will be priced to support local area networks and universal wiring within buildings.

We sent our draft request for proposals out to industry for comments with many constructive suggestions received and incorporated.

Our schedule is to issue our request for proposals in early summer with proposals due back in six months. Initial implementation will begin early in 1988 and final implementation and acceptance early in 1991.

That concludes my statement. We are certainly open for questions.

Mr. FAZIO. Thank you.

INTEGRATING VOICE AND DATA

Mr. FAZIO. GSA has been integrating data and communications functions which appears to be the trend in public and private entities. How do you see the advantages and disadvantages of that kind of organizational structure?

Mr. BENNINGTON. Our integration goes back a long way. We were called the Automated Data System before we were called the Office of Information Resources and Management. So it goes back almost 15 years.

Disadvantages, I am not sure I see anything other than resistance to change. In terms of advantages, if you want to implement anything large you become immediately aware if you don't have an integrated organization, that you have an obstacle. You will find that budget money is in various parts, you will find the decision route is in many different parts of the organization. It simply presents an obstacle to achieve any major project.

The basic driving force behind all of this is an integration of data, voice, video, all information services, at the technology level and what is driving that is cost effectiveness, not applications yet. It is simply cheaper to move bits than it is to move analog signals. So that to take advantage of that if you don't realign your organization you are creating unnecessary obstacles.

Mr. FAZIO. GSA made the decision to acquire a government owned system some time ago. Has there been any institutional regrets or second guessing?

Mr. BENNINGTON. I think three major reasons. In fact, that is the second time I have been asked that question today, I might say.

First of all, we just look at local services. The Bell operating companies are not moving as fast as we would like to see into the integration of voice and data. The applications are there. The quicker we are able to move in first class communications, the quicker we can take advantage of new applications to increase productivity. That is the first one.

Mr. FAZIO. That is today?

Mr. BENNINGTON. That is today. If we waited for the Bell Company to bring that kind of technology in we would have to wait too long, in our estimation.

Mr. THOMAS. I thought the chairman was asking a historical question.

Mr. FAZIO. Why don't you give me the historical information and update it?

Why originally?

Mr. BENNINGTON. Originally there was only one phone company and we went to them. Everything was from AT&T and the long distance program was AT&T and the local program was Centrex. If you look carefully at both of those they were both bypassed before the term bypass was invented.

The situation we have with divestiture and deregulation is that the old subsidies of local service by long distance is slowly disap-

pearing. If you look at the private line system that we had and our long distance it was purely a device whereby AT&T could bypass itself and give us cost based pricing. So it was AT&T service but it was a device to offer lower prices under the tariff structure. It is similar to Centrex, it is an artificial device whereby you avoid part of the excess charges. Now we are getting socked with the excess charges now. The private lines per se are beginning to die.

ACCEPTANCE OF PRICE INCREASES CREATES CONCERN

Mr. FAZIO. Their advantage is beginning to die rapidly. Our forecast shows that by 1990 we would be about par with that service. Do you feel it is happening faster than that. Why is that?

Mr. BENNINGTON. I think everybody seems to have accepted divestiture and deregulation faster than anyone thought they would have done.

Candidly, we are accepting major price increases more than we ought to, all of us collectively.

The kind of price increases that are being passed on to us under these charges, whether they are from the Bell operating company or through a third party, are major.

I will give you an example, if I may.

We have had raises of $35 million in our long distance program in tariffs in this last six months, and they are all back dated, and you don't find out until the bill comes in, because they come in dribs and drabs.

I am not aware of any other industry in which you would happily accept that.

So, when you ask me why it is happening so quickly, I am amazed that it is and why there isn't more resistance to the transition.

Mr. FAZIO. Consumers appear to be willing to accept the transition without much resistance. Perhaps, it is being ingrained through the years of living with the regulated system.

Mr. BENNINGTON. Also, the residential consumer has not yet begun to see the bite. We the private line users are the first.

We had most to lose and, therefore, we would be the ones that the strategy aimed at first.

The final point I was going to make earlier as to why you would want to get away from the phone company, what is left of it today, is that we desperately need to get predictable prices, which would almost be better than lower prices, if you understand me.

The prices are frequently changing.

Mr. FAZIO. The oil situation would have something to do with educating us.

Mr. BENNINGTON. The prices are swinging so greatly, we can't plan. Our customers can't plan, and my example of the $35 million increase—at times we look like fools because we are having these increases passed on to us.

So, we need to get predictable prices.

Mr. FAZIO. I am interested in your evaluation of the legislative branch, and I do benefit in this context from the fact that you have experienced some of this progress.

You have served the various entities at one time or another, directly or indirectly. I am interested in your management evaluation, perhaps, of what has been a unique problem for us. Where might we go in telecommunications? Perhaps you can address Mr. Thomas's question of the method of future organization.

I am interested in your thoughts.

Mr. BENNINGTON. I am very hesitant to comment on that situation, because I really don't know enough in detail. And let me add that if there is one thing that is absolutely true about telecommunications decisions, it is that very few things follow a rule of thumb, and nearly everything has to be worked out for that specific case in order to determine if it is the right course of action.

There are some givens that we have in the case of government. We find it very hard to attract and retain people. That is an overwhelming force.

HIRING TELECOMMUNICATIONS STAFF

Mr. FAZIO. I noted in your comments earlier that you take a much more jaundiced view of the ease with which we can go out and simply put together our own capable company and personnel.

Mr. BENNINGTON. I think that is because we are doing it.

Mr. FAZIO. So, some of the statements that were made along those lines were rather deliberate?

Mr. BENNINGTON. There is no doubt about that if you aggregate requirements and you go to the marketplace today you can do better than the phone company.

There is no doubt of that.

You can get broader service, you can integrate together voice and data and join several advantages there.

You can get predictable prices. You can begin to take control of your own telecommunications world. That is what our companies are doing.

The down side of it is that it definitely requires more people and smarter people. If I paraphrase, we are members of an association called the International Communications Association, which represents the top 400 or 500 communications consumers, not the suppliers.

If I can paraphrase the conclusion reached by that body in some of its annual sessions, it is that following divestiture and deregulation, we are all paying more. We are all getting less service, and we all have an awful lot more staff than we ever had before.

You will not be able to fight that trend.

What we are trying to do at GSA is also contract out the management of it. That was the point I made about buy your own bell rather than be your own bell.

MANAGEMENT STAFF CONTRACTED

Mr. FAZIO. You are contracting out for management rather than trying to attract and retain people at Federal salaries?

Mr. BENNINGTON. Yes. We decided several years ago it was a losing strategy to keep up with the number of people we would need.

I will give you an example. In long distance network alone we projected we would have had to add 129 staff, that was over a doubling of the current staff managing long distance.

At that point we decided any strategy that required us to compete for those people was a loser.

Mr. FAZIO. What kind of contract entities are you discussing? Are you talking about the regional operating companies as contractors, or others who may be limited to management skills? Or perhaps you are referring to the national companies, AT&T and their competitors.

Mr. BENNINGTON. So far we have been able to find, if we break it into city versus local, inter-city, we are finding excellent established competition. There are as many as six companies there which had capability of bidding on and handling our FTS 2000 project.

Mr. FAZIO. Given certain regional areas?

Mr. BENNINGTON. No, national. They have the management capability in order to run services of that size for us. They have demonstrated it because they already have in place public switch networks several times the size of our traffic.

If you now look at the local service you have a different situation where the Bell System is the one that has the natural management advantage and the switch manufacturers who tend to bid on these contracts in competition have had to play catch-up, however, if you look at the speed with which they have become adept at management in the last three to four years, we feel very comfortable in looking for those management skills with available competition.

Mr. FAZIO. Do think it will be there?

Mr. BENNINGTON. Yes, sir.

Mr. FAZIO. We would be required to go to a contractor to find qualified people at the required salaries?

Mr. BENNINGTON. Yes.

Mr. FAZIO. You can't acquire them independently?

Mr. BENNINGTON. If you look at the other side of the coin, if you look at the IEEE data on government salaries for engineers and you accept that we pay on an average 27 percent less than the private sector in the Washington area for engineers and technical telecommunications staff, if you look also at our program for reducing space so that we have less fancy quarters to accommodate them, if you look also at the amount of press that we get about the undesirability of the Federal career, you have to believe that a company like the Northern Telecom or Rolm with the freedom it has to attract and retain freedom in the salary structure and benefit and conditions you have got to believe they can do better than we can.

Mr. FAZIO. Is that a logical conclusion for a system the size we might be contemplating?

Mr. BENNINGTON. Yes. Did I hear the quotation of 15,000 as the number of lines?

Mr. FAZIO. Probably 30,000 to 40,000 lines in the Legislative Branch, depending on the degree to which we consolidate.

Mr. BENNINGTON. That is a large procurement. It is larger than our Boston switch procurement. We came out of that with prices

that are 35 percent under what we were paying for equivalent service in Boston.

Mr. FAZIO. When will the WITS system become operational?

Mr. DONALDSON. Service will begin to be delivered in 1988 and the three year phase will conclude in 1991. That is a phase of service. In other words, in 1988 we will deliver service to our customers.

FEDERAL AGENCIES PARTICIPATION IN WITS

Mr. FAZIO. How many Federal agencies have signed on?

Mr. DONALDSON. 120 in total but that includes many small agencies.

Mr. FAZIO. Are any Legislative Branch agencies included?

Mr. DONALDSON. No. The GAO and GPO are currently part of our contract.

Mr. FAZIO. But they haven't made decisions to go with your future?

Mr. DONALDSON. That's right.

Mr. FAZIO. What about other entities in the region, such as the World Bank, and the State of Maryland? Are you taking only the Federal agencies at this point?

Mr. DONALDSON. Yes.

Mr. FAZIO. What about those agencies that have already set up their own systems? We hear from the State Department tomorrow. Are there others that have established telecommunications systems?

Are you becoming a pool for the smaller agencies and the larger Federal cabinet agencies are going in a separate direction?

Mr. DONALDSON. There are approximately 30,000 or 40,000 customers in these agencies you are talking about that are procuring their own switches. They are referred to as delegated procurement authority agencies.

Mr. FAZIO. Who has delegated that authority?

Mr. DONALDSON. GSA.

Mr. FAZIO. That is a decision that was made administratively?

Mr. DONALDSON. Yes, based on economics.

Mr. FAZIO. There was no politics involved?

Mr. DONALDSON. We hope not.

Mr. FAZIO. I hope you are right. Theoretically this was an analysis that was performed which revealed that these agencies were considered large enough to procure independently; is that correct?

Mr. BENNINGTON. Yes. If I could add something to what Frank said, you have to think of WITS as delivering at least two different things. To the agencies which participate fully with us we will provide their intra-building calling as well as their inter-building calling and also inter-government calling, to other parts of D.C.

A second category customer will be able to buy just the inter-building and intergovernment calling, the equivalent of the message units in the local Bell System. Those equivalents of message units are a service anybody would be able to pick up from us.

What we expect is that a number of agencies that think they have a very small community of interest outside of their own build-

ings are going to be surprised at the message unit bills they get as they install their own system.

I think they will be major candidates to connect with us to allow them to communicate with other buildings. But we have tried as far as possible to deregulate ourselves at the same time the industry has.

So we exert no regulatory pressure to keep people on the system. It is cost and demand justified at this time.

Mr. FAZIO. In theory OMB is backing up your judgment calls as to which agencies will be most efficiently operating under the various approaches; is that correct? It is not a totally individualized decision.

Mr. BENNINGTON. That is right.

DISCUSSION ON PROCUREMENTS

Mr. FAZIO. Do you have any concerns about the individual procurements that are taking place? Do you have any involvement in terms of the process?

Mr. BENNINGTON. We stay very close to the individual agency procurements because they are potentially customers for our message unit equivalent service. Also, there are lessons to learn from their experiences in installing new switches. These agencies are obviously also customers of our long distance network so that we don't cut the rope and set the agencies adrift when they decide to do their own procurements.

The difficulty is, they run into the same things that we have discussed earlier. They need more people, message unit bills are sometimes surprising after implementation, and these kinds of things.

Mr. FAZIO. Do you negotiate contracts for these agencies or do they handle their own contracts?

Mr. BENNINGTON. They handle their own.

Mr. FAZIO. What kinds of general experiences do these agencies have? We are going to hear from some specifically, but I am looking for general information.

Mr. BENNINGTON. I don't have an overall comment.

Mr. FAZIO. There is no general record yet?

Mr. BENNINGTON. No.

Mr. FAZIO. We are still current, the process is still underway?

Mr. BENNINGTON. Yes.

GSA ASSISTANCE OFFERED

Mr. FAZIO. I am wondering how we might interrelate if we acquired our own switching system, for example, Are there services you could render to us regardless of the approach we take in the Legislative Branch?

Mr. DONALDSON. We could offer you the city network, or the network to allow you to bypass the message unit network to interact with other agencies.

Mr. FAZIO. So it really isn't duplicative? We would be able to join you?

Mr. DONALDSON. It would not be duplicative.

Mr. FAZIO. Is there anything that would preclude us from joining in with you? Is there something we could do for economic reasons?

Mr. BENNINGTON. The only thing that comes to mind is there are some agencies that would like us to become the vendor of last resort.

By that I mean the remote locations that nobody wants to serve, including C&P, they would like us to serve. There is a point at which we feel we can say to a customer we really don't want your business except at the following price. We can't average your business because the profile you are giving us are all the remote locations that are difficult to reach.

That is the only thing I can think of off the top of my head.

Mr. FAZIO. Do you have any help you could provide us in terms of standard contracting? The type of assistance you have been providing the larger agencies that are establishing systems.

Mr. BENNINGTON. We would be very glad to share our standard request for proposal document. That has now been exercised in the Boston RFP. We updated it based on our knowledge and the experiences and lessons learned there with the Boston area procurement. The lessons we have learned during evaluating our Region VI procurement had also been folded in, so the standard RFP is a pretty good document now.

Mr. FAZIO. That may have been something you said, I don't want to imply it wasn't. If we are going to be taking another approach, in terms of a centralized approach, this could be benefical to us.

Mr. FAZIO. Mr. Thomas.

Mr. THOMAS. Mr. Bennington, there was an agency that was looking for help. You have been through it. You are larger than most other companies. The figures you give us are obviously massive.

You have gone through the decision-making process. What kind of assistance can you give agencies that are thinking about contracting on their own, consulting or otherwise? What can you do for them?

Mr. BENNINGTON. In our national capital region we have a requirements contract for communications analyst, engineers, technical assistants, and support. Agencies can take advantage of that in order to get the people power necessary to put together their specification.

That plus our standard specification, which we re-issue every time we have new lessons learned. Those are a pretty powerful step up towards the procurement.

Mr. THOMAS. Has anyone availed themselves of this information to this date to your knowledge?

Mr. BENNINGTON. I think every PBX procurement within the Government has used our standard RFP somewhere or another and tailored it to their own use. That has certainly been true in this town with the Department of Transportation, Department of State, and other agencies.

Mr. THOMAS. Do you know of the legislative agencies utilizing it?

Mr. BENNINGTON. That I don't know.

Mr. DONALDSON. I don't know.

Mr. THOMAS. Thank you, Mr. Chairman.

CLOSING REMARKS TO GSA

Mr. FAZIO. Thank you. I appreciate both of you gentlemen spending the time with us today.

At this point, we will conclude the hearing.

Thank you both very much.

TUESDAY, APRIL 29, 1986.

ARTHUR D. LITTLE COMPANY

WITNESSES

JAMES HEBB, PROJECT DIRECTOR, HOUSE TELEPHONE SYSTEM
JAMES DEVLIN, MEMBER, EVALUATION TEAM

OPENING REMARKS

Mr. FAZIO. We will reconvene the hearings on telecommunications and once again welcome Mr. Rose and Mr. Thomas, from the Subcommittee on Office Systems, House Administration Committee, and the Members of the Subcommittee on Legislative Branch Appropriations.

Our first witnesses this morning are from the Arthur D. Little Co., which is a company with extensive experience in the design engineering and management of telecommunications systems for both government and industry. They were employed by the House on a consultative basis to analyze and evaluate the proposals for a new telephone system. Mr. Jim Hebb and Mr. Jim Devlin are senior members of the ADL staff of telecommunications experts and have been retained by the Clerk on behalf of the Committee for House Administration to review the proposal for a House telephone system. They are here today to provide this committee the benefit of their experience.

At this point, the best thing we could do is ask one or both of you gentlemen to make whatever comments you think are appropriate, and then we can ask some questions. Although Mr. Thomas has more background on the work you have done, this is an opportunity to obtain information from the people who have evaluated this situation.

Mr. HEBB. Thank you for inviting Arthur D. Little. I am Jim Hebb, and I would like to introduce Jim Devlin, who was a senior member of the House evaluation team. There were 11 professionals from our company who made up the evaluation team. Each individual had a specific background, and was appropriately assigned to evaluate specific areas for the evaluation. There was a data person for the data applications, a wire and cable person for wire and cable applications, a station equipment person, and a financial person that headed a team for the financial analysis, et cetera.

Unfortunately they couldn't all come today. Therefore, Jim and I will address the questions. We hope that sharing our experience with the committee will be helpful.

ADVANTAGES AND DISADVANTAGES OF AN ON-SITE SWITCH

Mr. FAZIO. Let's begin by asking about the advantages and disadvantages of an on-site switch versus an off-site switch.

Mr. HEBB. Briefly, some of the advantages of the off-site switch are that it has a higher reliability than the on-site switch. It does not require any space on the premise of the buyer.

Mr. FAZIO. Before you go on to space, why would it have more reliability?

Mr. HEBB. They have more history for large central office applications than the PBXs. Basically, it is just a history of use and down time.

Mr. DEVLIN. There is a little more redundancy built into what we call central office switch versus a PBX switch. The other thing that often happens on the customer premise is the loss of power, even though backup power is provided for systems such as you would buy.

The attention that is paid to backup systems in a private setting versus the telephone company is a lot different. They have special people who just take care of that type of thing, whereas on-site switch backup power is usually maintained by a person whose primary job is to make sure the switch works, and he assumes the backup power works.

Mr. FAZIO. As we move to having more separate phone company operations, and that is clearly the trend, what else can we expect in addition to people whose prime responsibility is to keep the normal system up and running?

Mr. DEVLIN. The system you are talking about for the House is a big private system, but in relationship to the telephone industry, it is a small system. If you are going to have the number of specialists that the telephone company normally has to do the work, you are going to have a lot of employees who are just specialized that won't have a full-time job.

SPACE REQUIREMENT

Mr. FAZIO. Go ahead, you were on to space.

Mr. HEBB. The next item was space. An off-site switch does not require space in the customers area. Space is quite expensive and scarce. The transition onto the new system is normally a lot easier for an off-site switch.

Some of the disadvantages are that you cannot control the operations and maintenance people that maintain the system, and you cannot assume possession of the switch. You can't actually buy the switch, itself. You cannot own the cable between the switch and the building. That would all be owned by the carrier.

Even with a contract, there are some questions. The cost of operations and maintenance are subject to change and there may be problems with using in-house cables and adopting to an on-site system.

The advantages of an on-site switch is that the ownership is clear. The purchaser has complete control of the switch. The switch is dedicated only to that one user. You can change the companies for operations and maintenance if there is any dissatisfaction with them. At the end of the 10-year period contract period, the cost would reduce if you plan to purchase the switch. At the end of the ten years, it may be technically advantageous to keep running the system, and the costs would significantly reduce. Changing to a

new on-site switch is easier. The inter-building cabling would allow networking using more modern transmission media, such as fiber optic cable, et cetera.

Some of the disadvantages of an on-site switch are the initial cost is normally higher than an off-site switch. It is a little bit less reliable, as we mentioned. It requires a fair amount of space, and that space has to be environmentally controlled, and it should be backed up with a secondary power source in case of failure. The installation of an on-site and transition requires a bit more disruption during initial installation switch. Those are the primary points, in our opinion, which should be considered.

INSTALLATION TIME

Mr. FAZIO. What about the time of installation? What is the normal time frame that might be required to engineer and install a system of approximately 10,000 to 15,000 lines?

Mr. HEBB. Well, including the site preparation, the system engineering, the factory assembly, the station survey, cable installation, switch installation and the testing of all those, everything from the beginning to the end for a 10,000-line system, the normal time from our experience would be somewhere between 12 and 15 months.

Mr. FAZIO. Has that often been an impediment to people making decisions to contract for a new approach, a new switch, making a fundamental change in the way they were served?

Mr. HEBB. We have frequently seen that time extended, frequently due to a customer being unable to provide his part of the arrangement on time more so than having the equipment arrive from the factory.

PERSONNEL REQUIREMENTS

Mr. FAZIO. What is the general experience with separate or contractor personnel to run an on-site system?

Mr. HEBB. Normally, the larger the system, the less number of people required per thousand lines.

Mr. DEVLIN. I think the decision to use contract employees versus your own employees depends a great deal on what your present force is. If the purchaser has people who are trained in some aspects of the telephone work, he will continue to do that type of work.

For instance, the purchaser may have people who can move the telephone from room A to room B and run his own wire from a wire closet to the telephone jack. And if he has those kinds of people, he will continue to keep them. But when he buys a brand new digital switching system, he doesn't have anyone who knows how to maintain that very complex machine, and so he will usually contract with the provider for some of their people to operate and maintain at least the switch and the peripheral equipment. The peripheral equipment being the things that might perform the directory function and the administrative functions that are required to diagnose the troubles in the system. This requires an expertise of trained people, and the customer will usually depend on the contractor for those people.

If the purchaser has no telephone experience at all in his organization, he might start off using the contractor to do everything and then gradually go through a transition of hiring his own people. They often hire some of the contractor's people to start doing that work.

Mr. FAZIO. Given your knowledge of what we are working with and the size system we are talking about, what kind of staffing would be required?

Mr. HEBB. The average number needed, and it is a rule of thumb, is one staff member for the administration of the system for each 1,200 lines, or so. For a 10,000-line system, you would need eight or nine people. The contractor would maintain and install a system of that size, and he would have one technician for about every 1,500 to 2,000 lines. So he would have six to eight people for that size of system.

You would also need a contractor every two years at election time to help with the massive moves and changes during that period.

Mr. FAZIO. In other words, there would be a bubble in personnel requirements for that one short timeframe. We would need a contractor every two years for a major change?

Mr. HEBB. That is right.

Mr. FAZIO. So we shouldn't, with any kind of reasonable ongoing staffing pattern, assume we would be able to handle that?

Mr. HEBB. No.

Mr. DEVLIN. Not unless you did something unique to reduce the level of movement, and I doubt very much whether that would happen.

INSTALLATION PROBLEMS

Mr. FAZIO. Tell us about some of the problems that have been typically experienced in installing new systems?

Mr. DEVLIN. One of the first problems that you normally encounter if you have an on-site switch is to try and get the site preparation work completed in a reasonable amount of time. It usually takes certain kinds of approval to move people from one place to another and vacate the space where you are going to establish the switching units. That can be a real problem—getting the space, and then after you have the space assigned and approved, you have contractors coming in and tearing out walls and starting to put pipes from here to there. They are conduits, I shouldn't call them pipes, to carry the cables. Their installation disrupts the building because of the jackhammers and things like that required for installation. I realize a lot of that can be done at night time.

Then, in running the wire, depending on the type of installation you get into, there might be some temporary wire required for the transition. People find that temporary wiring draped around their offices and hallways offensive.

There is a problem often times between the on-site vendor and the local telephone company because there has to be a lot of coordination between those two. The customer often have to act as kind of a referee to get things coordinated between the local telephone company and the on-site vendor. The on-site vendor, just by the

nature of his work, will cause a certain amount of trouble with your present system and the telephone company will continuously complain about that type of activity taking place.

. At times there are problems with the contractor doing his work according to the specifications and regulations. For example, they want to take shortcuts in running wire over dropped ceilings. They can go into dropped ceilings but they should use certain types of hangers in order to support the wires instead of just laying the wires up there on the ceiling tiles.

Someone has to manage what the contractor is doing, and this takes a lot of close supervision. It is one of the breakdowns that takes place many times in the installation of a system. The purchaser leaves it up to the contractor to go ahead and do pretty much what he wants, and really it should not be done that way.

Mr. HEBB. There are frequently indirect costs. For instance, as Jim mentioned, the frames of the ceilings get twisted so then you have to replace the ceiling. Another expense that frequently occurs is cable that is stapled to cement or cinder block walls. When that cable is removed, pieces of the mortar come loose. It has to be filled and painted, and at times the paint doesn't match the other walls and the whole room has to be painted. It is those indirect expenses that can escalate very rapidly.

COST SAVINGS

Mr. FAZIO. What are the savings that can be obtained from an on-site system?

Mr. HERB. Our financial analysis people who evaluated the price bids for the House estimated that it would cost about $56.9 million to run the present system for ten years. And if the House hired a staff of eight people, which is the number that we assumed would be normal to operate a system of this size, at a loaded salary rate of $50,000—I am just making an assumption the fringe benefits, or whatever the percentage is, would add up to about that—at the end of ten years, compounded at 10 percent, that number would be $10.4 million to carry those eight people.

So if you add the $10.4 million to the full cost of a new system, plus the site preparation and the trunking costs, the savings at the end of ten years by owning your own system would be somewhere in the magnitude of $25 million.

Mr. FAZIO. Does that include the cost for ongoing maintenance for the entire time?

Mr. HEBB. That is correct. The cost for maintenance were included in the bids from the contractor, and those eight people, that $50,000 a year, or $10.4 million covers the administration of the system.

Mr. FAZIO. One of the disputes we got into yesterday with the Architect was the question of rewiring. Was that considered as part of your analysis?

Mr. DEVLIN. I think the RFP stipulated that all new wire should be installed and that was part of each of the bids.

Mr. FAZIO. What about the cost of new wiring? Was that included?

Mr. HEBB. The cost was included, yes.

Mr. FAZIO. Were there differences in the kinds of wiring schemes bids?

Mr. DEVLIN. There is a part of the wiring called riser cables—these are the big cables that come from the basement into the closets. Now, the off-site switch bid did not replace those cables. It did replace, however, the wire from the telephone closet to the instruments.

Mr. FAZIO. That is the difference?

Mr. DEVLIN. Yes. There is a difference, and that is in the riser cables themselves. All of the on-site switches, the bids on on-site switches were to replace all that cable. The off-site switch would reuse that cable.

Mr. FAZIO. With your understanding of the bids that were made in the House for the system that we were attempting to acquire, can you estimate the savings and can you tell us where those savings will come from?

Mr. HEBB. The estimated savings over the ten-year period would be somewhere in the $20 to $30 million range, and it would come from the purchase of new station equipment versus renting, the ongoing renting of the present equipment. It would also come from savings of moves and changes that could be done by the in-house staff via a terminal accessing the switch. And the purchase price is less than the ongoing centrex line charges presently. Those are the major components.

Mr. THOMAS. Let's also figure in a factor we don't know the price of, and that would be the decision made over telephone costs by other governmental agencies if we continue the leasing arrangement. At least with the switch, we had our price and we were fairly comfortable with what that price would be. If we continue with the present system, you can factor in an assumption on what increases might occur, but you don't know for sure.

Mr. HEBB. No, we don't know for sure, but from the historical tracking, I believe we factored in 17 percent.

Mr. THOMAS. I understand, but yesterday we had testimony from GSA that had indicated that the prices are going up far faster than anybody had anticipated and that their percentages are considerably lower than the actual cost increases and that was one of the reasons he was urging people to go to their own system. If anything is going to be very inaccurate, it is recent history in telephones since the breakup. We don't know what is going to occur, and that unknown is a fact you have to consider in terms of costs.

So any cost estimate you give us is going to be slightly low if you figure in the historical increases because I have a feeling they are going to be far larger than that over the next 20 to 25 years.

Mr. HEBB. That is possible, yes.

Mr. FAZIO. You indicated that savings would be about $20 million. What percentage of that is based on buying the telephones instead of continuing to lease them?

Mr. HEBB. I am sorry, I don't have that. I can get that for the record.

SEPARATE SYSTEMS FOR HOUSE AND SENATE

Mr. FAZIO. We have a situation now where the House and the Senate have decided to take separate routes. From your experience, what problems do you foresee and what opportunities have we lost?

Mr. DEVLIN. The first thing that comes to my mind when you talk about two systems is the operators. I assume that you would have two choices here. You would either have all of the operators still in the same room and one group would have one set of consoles, and another group would have another set of consoles. I am not sure how you would divide the incoming trunks between those two, because right now you just have one group of operators who handle all the incoming calls.

There are some problems with that idea of having two separate kinds of consoles. You can work around it, but nevertheless you have to train people on two different pieces of equipment.

There will be a need for a referee to make some decisions. For instance, you find out that you need more trunks between the two systems. Whose responsibility is that, Vendor A or Vendor B? To get the trunks put in, these contractors have to work with one another, and they are kind of enemies, so you have less cooperation.

The more vendors you have involved in the system, the more difficulty you are going to have in trying to coordinate, and this is where the government people are going to have to be the coordinators. It just has to be.

Mr. FAZIO. It is one of our strengths.

Mr. THOMAS. Are there any advantages or disadvantages because of switches being on site? I know in the original analysis on the House side, they graded down the AT&T proposal because it had an on-site switch and graded up the C&P because it had an off-site switch. Yet when they went over to the Senate side, in terms of bidding, C&P went to an on-site switch rather than an off-site switch.

My question is: Are there any inherent advantages or disadvantages to both of them being on site given the problems you were talking about? Can you overcome some of the problems if they are both on site, since C&P switched from being off site to on site, we wound up with two different operations, physical plants. Is that helpful?

Mr. DEVLIN. I wasn't really looking at it that way when I was talking about two different systems.

Mr. THOMAS. It doesn't make any difference whether they are on site or both off site?

Mr. DEVLIN. No, it doesn't really make any difference.

Mr. THOMAS. There is no difference on site and off site?

Mr. DEVLIN. Wait.

Mr. FAZIO. At least as it relates to this question.

Mr. DEVLIN. There are some differences.

Mr. THOMAS. In interfacing in terms of the problem.

Mr. FAZIO. Has it been established exactly what C&P bid for the Senate?

Mr. FAZIO. Mr. Lombard tells me there were some statements made yesterday that the Senate has asked to correct, so we will

hold the record open for input from the Senate staff if they desire, and also from vendors concerning the facts of their bids.

Proceed, Mr. Devlin.

Mr. DEVLIN. There are a few features that are lost if you have two different systems. The operators can't do everything into a foreign system that they can within their own system. They can't make busy verifications. Now, when I say this, please, I have to qualify it. They can do so many things with software today that maybe certain vendors can overcome some of these problems, but these are the types of general problems that occur. The operators can't verify busy conditions, they can't identify the class of service for the station in the other system. They don't know whether that station has a high priority class of service or a low priority class of service. And station identification, where on their console they have a display that shows them what number is coming in, they lose that feature. So there are a few features like that which will be lost.

Mr. FAZIO. Are you sure they are lost or are they problems that have to be overcome? Will you make a distinction between problems we may have created and insoluble problems?

Mr. DEVLIN. I don't know that these things can be done from one system to another at this stage in technology. As I say, the way things are changing, tomorrow maybe they can all do this, but right now I think this is a problem to most of the vendors.

Mr. FAZIO. And when we have two vendors, we have separate problems.

Mr. DEVLIN. That is right. As far as economy of scale is concerned, you probably won't find it in the installation cost, but when you go to maintenance, spare parts, and personnel to operate the system, this is usually where you will find some economies if you have one vendor rather than two vendors.

Mr. FAZIO. Did you recommend that we not procure two separate systems?

Mr. DEVLIN. We were not asked that question. We were only evaluating the House.

Mr. FAZIO. The Senate didn't utilize your efforts at all?

Mr. DEVLIN. No.

Mr. FAZIO. You were paid by the House?

Mr. DEVLIN. Yes.

Mr. FAZIO. Did you recommend or consider a system for Congress or Capitol Hill?

Mr. DEVLIN. I don't think it is in our official report. If I were asked that question, I would recommend one system, yes.

DATA COMMUNICATIONS

Mr. FAZIO. What about data communication aside from voice communication?

Mr. DEVLIN. The RFP was predominantly for voice communication. There was some data requirements in there. I assume that they were not as heavy as you might expect because they have so many other data systems, but this is conjecture on my part. We had no role in identifying what the requirements were.

But I would say, I was here yesterday, and I heard some of the discussions in the morning, and I think all of you recognize there is a real need to have some kind of coordinated plan for communications, not just for voice. You mentioned there is now voice, data and video that has to be taken into consideration, and I believe the key to the whole thing is to have an overall plan for your communications.

One of the things that I liked about the AT&T proposal was their fiber optic network between the buildings, and I looked at that as something that maybe could be built on. What you need is a planning organization to be looking at these things and saying what is it that we need five years from now, ten years from now, and start building toward that. I got the sense this is really what you are talking about.

If the Bell system was successful, and I think it was pretty successful as a communications company, I think a lot of it was because of the planning and the foresight that they put into things. When you saw them building a building or putting cables in, they weren't doing that to solve a problem that came up yesterday, they were doing that because they knew they were going to need it two years from now.

And when you go into the telephone business, and that is what you are doing, you have to have that kind of coordination and planning if it is going to be effective. And I really believe that is something that is needed very badly in industry and in government.

PLANNING A CONSOLIDATED SYSTEM

Mr. FAZIO. Do we need a consolidated system? Essentially we want to put Capitol Hill together and plan for the future. Do we have the ability to have separate systems, perhaps more than two, that we could somehow integrate, manage effectively and plan with? Is there any reason why we couldn't do it either way? Give me your opinion on what would be preferable.

Mr. DEVLIN. Well, you tie in—where you have a high level of concentration of traffic between entities, whether it is between the Library of Congress and GAO, or whatever it is, where there is a lot of interconnection. The ideal situation would be to have the planning done for that total system, bring it into one system. It would be more preferable than to have this system here, and that system there. That way, what happens is you wind up having little islands of communications, and people can all talk to one another within their island, but they have trouble going out to other islands or systems.

We have done a lot of work overseas in developing countries, and it is not unusual there to find a big central office in a town and all the town people can talk to one another, but they can't talk to anyone out of town. And essentially that can happen as different organizations go into the telephone business. They are going to have a fine system here that solves a lot of their internal problems, but they are going to have some differences as they want to interconnect with their brothers and sisters that are next door to them.

Mr. FAZIO. Do those problems create additional costs?

Mr. DEVLIN. Yes. If you don't have a good plan, you will pay for it, because you will constantly be trying to solve problems that happened yesterday by spending money today, and that is not the way to run a communications business.

Mr. THOMAS. Mr. Chairman, can I ask that question slightly differently?

Mr. FAZIO. Certainly.

Mr. THOMAS. Given the differences various agencies have in terms of needs, and this goes back to your planning point, isn't it possible to start with what you have or with a structure, an architecture that through software changes can be adjusted, and with that knowledge other folks can plan their own structure with the understanding there needs to be a plug-in capability. That is different than each town devising its own plan. If you knew what the other town was doing, you could structure yours in a way that you could be compatible.

Clearly the ideal would be that you do the Hill all at one time, and I think there are degrees of planning. Sure, there is a comprehensive approach which never gets done. For the West face of the Capitol, we had bronze doors cast in 1910 and completion of the restoration of West front is still in progress. For example, the Library of Congress moving in a direction of a universal kind of plug-in, sometimes universal things never work right.

In terms of planning, if you have a central core architecture that is going to be the brain, you can plan accordingly.

Do you see any inherent problems of communication if you have got a hub that you can operate off of with the knowledge that that is the core architecture that you hang other things on?

Mr. DEVLIN. As long as it is understood that someone has to look at the total function of the system and be planning for the comprehensive building of this, whatever it is you are going to do. If you just have one basic part, you have to start someplace, I think this is the point you are making—you have to start someplace. If you start by putting in a local switch here and another one there, then someone has to be looking at what has to be done to bring the two together, as well as what other switches are going to be connected we are going to bring in here, or whether another switch is needed, to connect them all together.

That is the kind of planning that has to start taking place very soon. I say don't wait until you have this one thing finished and then start something else.

Mr. THOMAS. Isn't that more realistic to approach the way things are going to go than to assume you are going to have a comprehensive movement?

Mr. DEVLIN. Realistically speaking, you can't do, you know, the ultimate of coming up with a grandiose plan, because by the time you got that started it would be obsolete.

Mr. FAZIO. Mr. Lewis.

Mr. LEWIS. Thank you.

Mr. Devlin, you indicated you were here at least part of the day yesterday and listened to witnesses, as I did. I did not ask a ques-

tion to those witnesses that I would like to have you respond to. You were observing many of the same things I was.

Following up on Mr. Thomas' question, I had the impression if I had asked those witnesses, individual agencies, if we give you the charge responsibility to do that which Mr. Thomas just suggested, to start where we are and you are going to be responsible for and control planning around that central base. You would need to find out what other agencies need and are doing and plan a system for us that you can operate that will maximize our ability to use modern technology for these communications needs, could you do it?

My feeling was that at least more than one of those agencies would have felt they could have accomplished that given the responsibility and the charge. Did you have that impression?

Mr. DEVLIN. From what I heard, I would say that there was some indication that they would probably do that. They would need some people first.

Mr. LEWIS. If I asked them, could you provide the kind of security of information that this other agency may need if you are operating this central system for them, they went out and studied it, I had the impression they would say "Sure, we can do that".

I also had the distinct impression if you suggested one of them might be under the charge of another, then they would want a separate operation. Did you have that impression?

Mr. DEVLIN. Yes. I think that is true. Yes.

Mr. LEWIS. For any of those agencies who might either be listening or might read this testimony, I would like to hear their reaction to how they might have reacted to that question.

Thank you, Mr. Chairman.

Mr. FAZIO. Mr. Rose, do you have some questions?

THE C&P PROPOSAL FOR THE HOUSE

Mr. ROSE. If we had gone with the C&P proposal in the House, would we have owned the switch at the end of ten years?

Mr. HEBB. No, sir, you would not.

Mr. ROSE. Who would have owned the House wire?

Mr. HEBB. That is questionable.

Mr. ROSE. That is up in the air. Let's move on then. You people recommended that GAO should obtain its own PBX. What was the difference between that situation and what you recommended for the House?

Mr. HEBB. I am afraid that I am not familiar with that.

Mr. ROSE. That is my understanding. I am under the impression you recommended they obtain their own PBX.

Mr. HEBB. I would have to look at that study, Mr. Rose.

Mr. ROSE. I would appreciate that, for the record, as to what is the difference between the recommendation of GAO to own their PBX, in that situation, and the earlier recommendation that you made to the House.

Mr. ROSE. And then one final question: Under what conditions should the owner of a new system who is replacing old wire consider installing a so-called universal wiring plan? In other words, to say it a little differently, for an institution like Congress, do you

believe installation costs should be the primary consideration, or should other considerations, like functionality, versatility, and longevity be considered? Let's go back to the first part. Under what conditions should the owner of a new system who is replacing old wire consider installing a universal wire?

Mr. DEVLIN. I think definitely they should have a universal wiring plan, and I do believe that that was part of the RFP that all of the vendors would provide a universal wiring plan. And that simply means from the jack in the wall to the halls or closet, it specifies four pair and a universal jack so that you could unplug any telephone in one room and plug it into another jack in another room, and that was part of the RFP. But certainly it should be required.

Mr. ROSE. I will settle for that, Mr. Chairman. Thank you.

Mr. FAZIO. Okay. I would like to finalize this testimony with a couple of additional questions. When you evaluated the proposal that was made to the House, which do you feel has the highest telecommunications qualifications? You talked about fiber optics earlier, saying you thought the AT&T plan had some real advantages in that context, but overall how did you evaluate them? What were, from your perspective, the evaluations that you made of the various bids that came to the point of overall best telecommunications qualifications?

Mr. DEVLIN. As far as the features that were provided by all other vendors, they were relatively equal. You know, they can all do almost the same thing. How the users would respond to the instruments, and the functionality, these systems are pretty competitive, very competitive. So you can't really say one is better than the other in that respect.

One of the big advantages that we saw with the C&P bid was they would not require space that is very valuable to you. They would not have to come in and run new cable, riser cables. They would have to rewire everything, but they wouldn't have to run new riser cables, they wouldn't have to run cables between buildings, because they already have those. And they have a big advantage, the fact they have this cable from their central office right to your wire closets. That gave them an advantage, there is no question about it.

Mr. FAZIO. Let me interrupt you there, if I could. In every situation when a new system is procured and there is an existing regional company in a dominant position, there will be that advantage. So when is there sufficient justification to override that advantage? For what purpose and at what point in terms of additional costs?

Mr. DEVLIN. Surprisingly, sometimes the local company bid isn't always that much lower than someone else. If the bids were relatively close in terms of dollars, if you were just looking at that, you would probably want to go with an on-site switch because you wind up owning the switch. You can change that switch later on because once you buy the cable in the building, it is yours, and you have control of it.

Mr. FAZIO. So that is why there are five or six major companies trying to take this business away.

Mr. DEVLIN. Absolutely.

Mr. FAZIO. Otherwise there would be no incentive.

Mr. DEVLIN. And they are being very successful at capturing a big piece of the PBX market.

I guess the site preparation had a lot to do with it, and the simplicity of cutting over the system without disrupting the Members of Congress and everything.

NEW SYSTEM OPERATION

Mr. FAZIO. Let me just finalize this point, there is a certain degree of sensitivity on the part of all Members about how their colleagues are going to react, and we had some testimony yesterday that was to some degree disputed. We talked about a flash cut over change. We also were concerned about the ability to continue a five-digit dial capability.

From your objective standpoint, what are we going to see in terms of the kind of disruption the Members are likely to see? What do you see in the transition to a new system? Give us gradations.

Mr. DEVLIN. If the C&P Company were to make the switch over?

Mr. FAZIO. Off-site to on-site.

Mr. DEVLIN. Even off-site to on-site. If the C&P Company did it, they would continue to use the riser cables. This is another advantage they have. They can make a change from one switch to another, and you won't know it. They have done this many times, and you were not even aware they were doing it. So they can do that.

When you have an on-site switch, their transition is a little more difficult. An on-site switch with another vendor who is not going to use the present cables, will find it more difficult to make what you call a flash cut over than it would be for the C&P. Because of the configuration of the present plant, it makes it easier. If the on-site switch is installed by another vendor other than C&P, there will probably be a considerable amount of trouble for a week after they flash cut. And what that means is there would be a lot of telephones that are not properly hooked up and ringing right and that sort of thing.

Mr. FAZIO. What about the five-digit number, is that a management question again, whether we get to coordinate the system if we interface?

Mr. DEVLIN. My understanding is that all of the vendors have agreed, yes, they will be able to provide that, and it will work no matter which two systems you buy. I think they are committed to that, at least verbally they are committed to that.

Mr. FAZIO. Are there any other questions of Arthur D. Little?

Mr. MYERS. Mr. Chairman, I wasn't quite clear. You stated there would be a $20 to $30 million savings over a ten-year period. How many people did you say it would take to operate this system?

Mr. HEBB. It would take eight additional people to administer the system, and it would take six or seven people from the contractor. But those people are figured into the price of the bid.

Mr. MYERS. But operating and maintenance of the system, once it is operational, how many people—where is the savings?

Mr. HEBB. The operations and maintenance would be conducted by the contractor, and that cost was presented with their bid. We

are estimating it would take about five or six or seven of their people to do that. But the cost of these people is in their bid.

Mr. MYERS. GSA would not operate the system, it would be contractor operated then? Is that what you are proposing?

Mr. HEBB. Yes, that is correct.

Mr. MYERS. Thank you.

Mr. THOMAS. Mr. Chairman.

Mr. FAZIO. Yes, Mr. Thomas.

Mr. THOMAS. I believe you indicated it was agreed upon any of the vendors would provide the five-digit opportunity, and you indicated at least verbally—but it is in the contract. It is a written agreement, not a verbal one.

Mr. FAZIO. The question we would have, is whether it is in the Senate contract?

Mr. FAZIO. That is another question. Anyway, thank you very much for your testimony.

[CLERK'S NOTE.—Arthur D. Little, Inc. submitted the following information in response to information requested for the record.]

Arthur D. Little, Inc.

Acorn Park
Cambridge, Massachusetts 02140-2390
Telephone 617 864-5770 Telex 921436

May 6, 1986

The Honorable Vic Fazio
Chairman, Sub Committee on
Legislative Appropriations
Room H-302
The Capitol
Washington, D.C.

1986
At the frontier
1886

Dear Mr. Fazio:

As you requested at the Telecommunications Hearings held on April 29, 1986, in Washington, D.C., I submit the following information:

1. Question:

What percentage of savings is attributed to the replacement of telephone sets?

Response:

It is expected that in excess of 75% of the actual savings will be attributed to the replacement of telephone sets. That is caused by the direct purchase of the sets versus leasing sets, and the ability of in-house staff to move and change sets from an operations terminal within the House.

2. Question:

What is the difference between the Arthur D. Little recommendation to GAO to acquire its own switch versus the ADL House recommendations?

Response:

Each telecommunications system replacement decision is based on different and unique criteria. Below are excerpts from the Recommendations sections of the above-referenced reports. In

The Honorable Vic Fazio
Chairman, Sub Committee on
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Arthur D. Little's report to the GAO in February 1985 titled, "Requirements Analyses and System Design," our recommendations for meeting immediate and projected 10-year requirements were as follows:

"Short Term

- Procure an automated-user administrative moves and changes system from C&P;
- Establish automated data bases for equipment inventory and work order and repair tracking;
- Establish a user training program on Centrex features, calling policies and procedures, and data transmission procedures;
- Perform a transmission analysis on FTS circuits between Headquarters and western regional offices;
- Restrict station lines from general long distance calling to reduce abuse;
- Continue with organizational staffing plans to meet functions and operations of short- and long-term requirements.

Long Term

Procure an integrated digital PABX system to meet requirements, correct system deficiencies, achieve state-of-the-art technological enhancements, and generate substantial cost savings."

The GAO had requirements for capabilities such as a message center, automated directory, systems management, call detail recording, electronic mail, and automated fault and diagnostics; these

requirements could be better provided in an integrated manner by a digital PABX. The GAO had approximately 4,000 lines, whereas the House had about 14,000 lines.

In comparison, Arthur D. Little, Inc., was not involved in the development of any requirements for the House of Representatives, nor did we have any input to their Request for Proposal (RFP). We therefore were contracted to evaluate the proposals against predetermined criteria set forth in the RFP. The following were our recommendations first for an off-site and second for an on-site switch.

"C&P's technical score is sufficiently higher than the other three bidders to identify that firm as the clear choice in the technical category. Combining this score with the cost evaluation that indicates C&P's costs will be considerably less than those of the other bidders over a 10-year period, and its combined weighted points well above the competition, we recommend that the House of Representatives accept the purchase offer proposed by the Chesapeake and Potomac Telephone Company. Note that the purchase offer proposed by C&P, due to Public Service Commission Regulations, requires that ownership of the switch and cable remain with C&P."

However, if there were other criteria that supported an on-site switch that were not included in the RFP and were therefore unavailable to ADL (such as those that surfaced during the hearings), we offered the following recommendation:

"If for some reason the House decides to lease or purchase an on-site switch, we would recommend the AT&T-IS system since its technical score, costs, and combined points identify them as a clear second choice. Its intra-building design incorporating fiber-optics also provides a facility that may be very desirable for unforeseen future requirements."

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Mr. Chairman, on behalf of Arthur D. Little, Inc., once again I sincerely thank you for the opportunity to appear as witness before your Committee.

If ADL can be of further assistance, please do not hesitate to contact me.

Very truly yours,

M. James Hebb

brs

TUESDAY, APRIL 29, 1986.

DEPARTMENT OF STATE

WITNESSES

SANDOR JOHNSON, DIRECTOR OF PLANNING, OFFICE OF THE DEPUTY ASSISTANT SECRETARY OF OPERATIONS
PAUL TREUSCH, MANAGER OF TELECOMMUNICATIONS

Mr. FAZIO. We have heard or will hear from private corporations, Federal agencies, and a large private university that have similar telecommunications procurements and have taken different approaches. I will ask now the Department of State witnesses to come up while I present some background information.

In October, 1983, the Department of State signed a ten-year lease-purchase contract with Western Electric, along with AT&T as a subcontractor, for a new telephone system to provide voice and data telecommunications service to approximately 12,000 Washington area employees dispersed among seven different geographic locations. The contract, in the amount of approximately $37 million over the 10-year life, provides for the installation, operation and maintenance of AT&T System 85's, and new telephones and associated wiring at each location. Two Systems 85's which serve 8,000 lines at the main DOS building and smaller versions for three other locations were installed using existing telephones and wiring. New telephones and associated wiring are being installed on a phased basis at the rate of approximately 300 sets per month. Operation and maintenance is performed by contractor personnel who are required to obtain top secret security clearances. The economic analysis does not indicate a savings until the end of the purchase period in 1993.

INTRODUCTION OF WITNESSES

We have Mr. Sandor Johnson, Director of Planning for the Deputy Assistant Secretary of Operations, who is responsible for the planning and implementation of the new telecommunications system, and his associate, Mr. Paul Treusch, the Operations Manager for the new system. We appreciate their attendance today to share their experience with us.

You may want to further elaborate. If you have any statement, you may place it in the record.

Mr. JOHNSON. We appreciate the opportunity to come here today and speak to you about the telephone system we have been implementing since approximately 1983. The actual RFP development preceded that by over a year and included a study of different proposals from competing vendors.

Mr. FAZIO. You began in 1982?

Mr. JOHNSON. The RFP was issued in 1982, that is correct.

Mr. FAZIO. You were among the first in town I guess, weren't you?

Mr. JOHNSON. Right. My predecessor began this project in 1977 with the idea of looking at competing proposals, looking at—determining if there was technology, if there were competing vendors of sufficient capacity to prepare valid proposals, and it took several years of discussions with GSA before we received the authority from GSA to go out on our own.

Mr. FAZIO. GSA doubted your wisdom?

Mr. JOHNSON. Not necessarily our wisdom, but the ability of the marketplace to put forward valid proposals.

Mr. FAZIO. They didn't think there was much competition out there at the time, is that correct?

Mr. JOHNSON. That is correct.

Initially when we put out our RFP we received three proposals. We were very pleased about that. I think now, with the breakup of the Bell System, there is a good chance one would get more than that from among many large-scale PBX vendors.

Mr. FAZIO. You don't think you were premature? There was sufficient competition to get what you were looking for?

Mr. JOHNSON. Yes.

SYSTEM REQUIREMENTS

Mr. FAZIO. Was it cost you were looking for?

Mr. JOHNSON. I think the performance issue was upper most in our mind. Our main issue in performance has been the ability of the Department of State to run a 24-hour-a-day government department that is heavily involved in national security and crises that can happen at any hour of the day or night and ability to have a communication system at any hour of the day or night which could respond to a new crisis, a changed condition, a Secretary of State in some other part of the world.

Mr. FAZIO. Your system didn't provide all of that before?

Mr. JOHNSON. We did not have any control over the system. We had no management capability. We had no staff. We had no technical manager, such as Mr. Treusch, who is here this morning. The only thing we did as a department in the way of telecommunications management was to write up orders for putting an instrument here, putting one there or pass out the bills to the various bureaus. We could not evaluate independently special requirements for individual offices.

Mr. FAZIO. Did that have security implications? Is that one of the reasons that you sought a higher level of performance?

Mr. JOHNSON. That is correct. We wanted to have switches that were on site so we could control the security clearances for the people, the maintenance people who on contract would enter our premises, and also so that we would be able to control access of the lines, and it is something we have been doing overseas in our embassies for about ten years now. And it was only fitting that in view of the intense concern we have over the security of unclassified telephone calls overseas that we should also have no less concern for our facilities here in Washington.

Mr. FAZIO. You described the on-site switch. Could you briefly describe the system that you currently have obtained and how it differs from what you have had before, and any more detail that you can provide?

SYSTEM DESCRIPTION

Mr. JOHNSON. The new system has approximately six switches, three in the district, three in Virginia, and they are all tied together, or three of them are now tied together, and as the other three come on line, they will be tied together in a convenient five-digit dialing plan. All switches will be on government premises and the lines between them will provide the capability for this five-digit dialing regardless of what building a particular employee is located in.

It combines the staffs of three agencies, Arms Control, AID, as well as State Department in one system, and since we have a large community of interest with one another, that is an advantage as well. The old system had several different central office switches operated by C&P located in various parts of town, and our ability to make changes was limited. In fact, it became far more difficult after divestiture.

THE AQUISITION PROCESS

Mr. FAZIO. What was the acquisition process? You said you started in 1982 and went to bid. Tell us what has happened since?

Mr. JOHNSON. 1982 to 1983 was an evaluation period in which a staff of people representing different departments, different offices with the Department of State, a couple people from GSA joined with us in looking at the technical proposals, a separate group looked at the financial proposals, and then we took trips to evaluate actual operating systems. That process took a little more than a year, and during that time there were hundreds of questions we asked in writing to which we received responses In quite a number of cases we had to go back a second and third time to try and get the actual degree of clarity necessary to form a good contract.

The contract was actually signed in 1983.

Mr. FAZIO. Who were the two other vendors who bid besides AT&T?

Mr. JOHNSON. AT&T was the successful vendor, and Northern Telecom and GTE were the other vendors. The tariff carrier, C&P did submit a proposal.

Mr. FAZIO. They didn't bid?

Mr. JOHNSON. They did not propose anything.

Mr. THOMAS. Mr. Chairman?

Mr. FAZIO. Mr. Thomas?

Mr. THOMAS. I have a question in terms of your exhaustive research. In retrospect, would it have been useful to employ a consultant to pull together some of the general technical information for comparative purposes, or do you feel really what you did was time well spent because it is a long time to go through that process of evaluation?

Mr. JOHNSON. The amount of time that we spent on it was preceded by a consultant from Booz-Allen. We had a consultant during

the specification phase, drawing up the specifications and requirements. There was back and forth communication with the consultant.

Upon completion of the consulting phase, when we got into actually issuing the RFP and evaluating that, we had the consultant, we could have called upon the consultant. However, our main interest was, since we are actually going to be living with the system and going to have to be interpreting the contract probably on our own, it would be better if we drew heavily, involved our own people as much as possible.

Mr. THOMAS. So consultants are useful up to a point, but ultimately your suggestion is the people who have to live with the system have to make the final decisions based upon what they know best in terms of their needs?

Mr. JOHNSON. That is right. You need institutional memory.

IMPLEMENTATION STEPS

Mr. FAZIO. Anyway, you went ahead and made a decision in 1983. What has happened since then?

Mr. JOHNSON. The first phase of the implementation was a request to the vendor, and this was part of the specifications, to make a sample station review. What that meant was go through representative areas of the building and see if we could install the right mix of telephone sets. This is a critical issue. You could easily install elaborate telephone sets on each one of the employee's desks, that would be 12,000 sets. That would blow the contract sky high.

Every step we take is meant to have us live within the contract perimeters. The first step was to determine with the vendor that a mix of 2500 sets—programmable sets that are like what many people have at home—would be installed along with a mix of the more elaborate electronic sets. We then awarded the second phase of the contract, which was for full implementation, and then we got into a lot of the problems ADL had mentioned earlier.

Mr. FAZIO. Could you have taken another approach at that point, the second phase? Was the contract cancelable if you were dissatisfied?

Mr. JOHNSON. We could have paid the vendor a dollar amount specified in the contract and washed our hands of it.

INSTALLATION PROBLEMS

Mr. FAZIO. Are you satisfied with the vendor's performance?

Mr. JOHNSON. I don't think anyone can claim total satisfaction. We have had a number of problems. We would be pleased to discuss them with you this morning. We have been working to resolve those problems and I think we have been able to come to solutions for many of those.

Mr. FAZIO. Without becoming too technical or specific, because some of these problems could occur with any contract, briefly describe some of the problems.

Mr. JOHNSON. During implementation we had problems outside the contract that led to delays, such as the site preparation and lo-

cation of space. We also had problems specifically with the vendor that resulted from some things we thought we could get.

We thought we could have GSA directly connect tie line trunks between the State Department and the C&P switch operated for the GSA Centrex. That would have enabled us to call government agencies without the message unit charges. We could not get that, so that meant we had to re-engineer our trunk lines.

We could not bring up the whole system at the same time. We had to bring it up in phases. We brought up the State Department and a couple of our other office buildings at one time. However, the second largest single group, in Rosslyn, did not come up at the same time. So that meant instead of being able to use inter-switch trunk lines or inter-switch circuits, we had to dial "9" to get to Rosslyn. That meant you needed to have a greater number of trunks than had originally been planned.

Granted, that is a temporary requirement, eventually we will get that switch up in Rosslyn, and then we will no longer require those trunks, but it does require an ability to be flexible and the ability to identify problems and to seek the solution rather than get into a situation where we could have had insufficient trunking.

Mr. FAZIO. Mr. Rose.

DIFFICULTIES ENCOUNTERED IN DELIVERY

Mr. ROSE. I understand that AT&T did meet your cutover due dates with the new installation equipment, but implementation was delayed several months because the local phone company didn't deliver necessary circuits, and I have been told that the phone company only met your requirements after high-level appeals by the government. Once the phone company did deliver the necessary circuits, the cutover proceeded. Can you confirm whether that is correct?

Mr. JOHNSON. I think we have had a number of difficulties with the vendor delivering certain things alcng the way.

Mr. ROSE. I was asking you a specific question.

Mr. JOHNSON. In the case of the trunks, I feel like we should have had better notification that there was a shortfall in the trunking. And I think that Mr. Treusch here took a very important action when he recognized that the trunking had not been delivered. The response we received from AT&T for the reason they were proposing the cutover without the trunks was because of the very long delay of getting the trunks from C&P, at which point we felt that if ever a high-level representation to C&P was necessary, this would be the time it would be necessary. That is when we did that, and that is why we did that.

Mr. ROSE. What did you do?

Mr. JOHNSON. We wrote the letter to the executive level within C&P to deliver additional trunks, to accelerate the delivery date for additional trunking.

Mr. ROSE. How well does the system 85 link the 16 discrete State Department locations?

Mr. JOHNSON. At the moment, it is linking approximately four of those locations, I believe. And in my opinion, I think it provides convenience in accessing people.

Mr. ROSE. The problem you just described is trunk lines?

Mr. JOHNSON. We did not cut over until we had the adequate trunk lines. Among the four locations that are operational, the trunking is adequate and has performed well.

CONNECTION TO WITS

Mr. FAZIO. Are you going to the WITS system, by the way?

Mr. JOHNSON. No, I think one reason GSA was reluctant to give us the procurement delegation was because they wanted us to be part of the WITS system or some sort of system for the Washington area. So when we went into this, we were in fact removing ourselves from the possibility of participation.

Mr. FAZIO. In other words, the WITS is not available to you to augment your existing system or to deal with other Federal agencies.

Mr. JOHNSON. We, indeed, may wish to use the WITS to connect our PBXs with GSA facilities.

Mr. TREUSCH. Our system is set up so that each switch is a backup to the other switch. Each switch has its own trunk lines, has its own list of directory numbers. We could consider being part of the WITS program just for additional redundancy, and if it was a cost savings to all government agencies.

MESSAGE UNIT COSTS

Mr. FAZIO. Because the question of message unit costs came up, can you estimate what those costs were.

Mr. TREUSCH. We are having message unit costs now of approximately $25,000 per month.

Mr. FAZIO. Was that anticipated?

Mr. TREUSCH. No. We anticipated a cost but not this high. These are a result of the State Department calling the State Department through the C&P system.

Mr. FAZIO. So it is a temporary problem. When the system is complete, it should not be a major problem?

Mr. TREUSCH. Right.

CONTRACTING CONCERNS

Mr. THOMAS. In terms of the category of problems that you faced, try to give a percentage weighting or an emphasis to them, to what extent is it the nature of your business, the State Department is slightly different than other operations, and the difficulty in working around that problem; or to what extent is it problems not foreseen by either side, they just have come up in the nature of the installation; or your failure generally in terms of sitting down and writing a contract and you just didn't have those things you should have put in the contract, and now you wish you had; or it was the vendor's fault in terms of just not delivering as it was promised or felt was part of the agreement. Those are four areas to me that are different. Anticipating problems we are going to have, can you weigh those for us?

Mr. JOHNSON. I think you would want to develop a good indigenous staff that has the knowledge and ability to monitor the com-

pliance of the vendor with the contract. By indigenous staff, people who will have gone through the award of the contract through the evaluation of the proposals, and be able to look back at the negotiating record during the course of contract implementation, people familiar with the negotiating record, because that is part of the contract just as much as the specifications are.

Mr. THOMAS. That would be the primary emphasis you would place, very similar to Arthur Little's comment in terms of when the agreement is worked out——

Mr. JOHNSON. Yes, I am thinking very much of what they said this morning. I think our experience really shows that the vendor inevitably has a tremendous number of people who are working on the contract, and even the vendor may not be monolithic in being able to understand and respond to the proposal. And that has really been a large focus.

Mr. THOMAS. That is far and away the largest problem?

Mr. JOHNSON. Yes.

Mr. THOMAS. Rather than unforeseen items that were not included or the nature of the installation?

Mr. JOHNSON. I think some of the unforeseen problems relating to space and the need to respond to that, to the partial cutover, that called for flexibility on both the vendor's side and our side too.

Mr. THOMAS. And that has occurred largely, the flexibility on both sides?

Mr. JOHNSON. We have had to focus eyeball to eyeball on that.

Mr. FAZIO. You had to be very close?

Mr. JOHNSON. That is right.

Mr. TREUSCH. I would say on that, that 75 percent of the problems would refer to the RFP and how detailed we are in the RFP.

Mr. THOMAS. Thank you.

Mr. FAZIO. Mr. Thomas' question is a good one. He put it, in good sequence. I hate to take any more of your time. With all the problems we have in the world, we hate to take the State Department's time, but if you could think a little bit more about those four points and try to answer for the record we would appreciate it.

United States Department of State

Washington, D.C. 20520

May 5, 1986

Dear Mr. Chairman:

Per your request, I am pleased to enclose written responses to questions asked by Congressman Thomas at a hearing on House telecommunications on April 28.

Our responses are geared to your questions and should not make us lose sight of the fact that in a contract of this size problems are bound to occur. However, we are pleased with the operating system and equipment. Our relationship with the vendor has been excellent. The vendor has been responsive to our concerns, but at times slow to anticipate problem areas.

I appreciate having had the opportunity to share our experiences with your subcommittee.

Sincerely,

Richard C. Faulk
Acting Deputy Assistant
Secretary for Operations

The Honorable
Vic Fazio,
Chairman, Subcommittee on
Legislative Appropriations,
House of Representatives.

State Department Response To
Chairman, Subcomittee on Legislative Appropriations
Per Hearing, April 28, 1986

Based upon your experience, reflect upon the problems you have had in the following four categories:

1. Unforeseen problems

Delays in obtaining space for telephone equipment rooms

-- Department of State building - delay in identifying alternate space for offices located in area designated for the Central Switching facility.

-- Department of State annexes - delay in concluding leases with lessors due to changes in building ownership, sub-lessors not willing to vacate space, objection to turning underground parking space into switch room by county planning commission.

Delays in site preparation

-- Contractor delayed turning on batteries at one site until battery ventilation system could be planned and completed. Vendor was asked to provide specifications for ventilation.

-- At one switch site, installed in a parking garage, water was found to leak through porous cement. Efforts to seal the room's ceiling are now underway.

-- Contractor requested removal of sprinklers from switch rooms. GSA delayed pending resolution of fire safety concerns. GSA does not contract for halon installation. We have arranged for halon installation at Main State, it is pending at a second site (included in a separate contract with a halon contractor.) At four other sites halon has not been ordered.

Telephone access problems - After cutover, callers in some areas reported inability to reach the Department on the new exchange. This was a problem with a number of local operating companies around the country.

2. Problems because we failed to work something out contractually - We believe that problems with some relevance to this category are more appropriately included in other categories.

3. Vendor's fault - failure to deliver or plan:

-- Contractor, acting on behalf of the Department, ordered trunk circuits for the system. Two events increased the trunking requirements: 1) denial by C&P of trunks between State and the GSA Centrex, and 2) the delay in the cutover of the Arlington switch. Calls between Main State and Rosslyn needed to use Central Office trunks rather than the direct switch to switch circuits. Contractor did not plan to have circuits operational prior to cutover.

-- Contractor has delayed delivery of tapes for recording long distance and FTS billing information. System cutover took place without this billing system, a contract requirement, in operation; acceptance is being delayed.

-- Contractor has been unable to complete 30 consecutive days of traffic statistics, due to computer problems; acceptance delayed.

-- The contractor has been unable to provide accurate directory data.

-- The contractor has not provided access to the system data base to the COTR.

4. Problems unique to the Department of State because of State's business:

-- A key sub-system of the Department's system, the Operation Center consoles, was not ready for service at time of cutover. This was the only area in Main State to remain on the 632 exchange at time of cutover.

-- All contract personnel must have appropriate security clearances for access to the Department of State. There were delays in assigning personnel where security procedures had not been completed.

PERSONNEL REQUIREMENTS

Mr. FAZIO. How many staff persons are required to operate and maintain the system Mr. Treusch?

Mr. TREUSCH. Right now it is ten, projected to 12.

Mr. FAZIO. You contract for a good deal of service, is that correct?

Mr. TREUSCH. Right. Now we contract all operators, which is ten. We also contract communications consultants and software consultants for a total of 15 people.

Mr. FAZIO. What service do you get with AT&T? Do they have any people who are managing this system?

Mr. TREUSCH. They have resident engineers. Right now, with the implementation, I would say probably 40 people.

Mr. FAZIO. What do you anticipate when they finish?

Mr. TREUSCH. When they finish, I would anticipate maybe five to twelve.

Mr. FAZIO. So the bulk of the management and operation will be you and other contractors you choose?

Mr. TREUSCH. Right.

Mr. FAZIO. What about record keeping, is that going to be totally within your purview?

Mr. TREUSCH. Yes, sir, it will.

Mr. FAZIO. What did you have before you started? Did you have any staff at all in this area?

Mr. JOHNSON. We had a very, very minimal staff that was geared toward moves and changes of existing station sets and a couple of operators.

Mr. FAZIO. Are there questions from other members?

Mrs. BOGGS. Mr. Chairman.

Mr. FAZIO. Yes, Mrs. Boggs.

SITE PREPARATION PROBLEMS

Mrs. BOGGS. I think it would be very helpful to us if you could point out some of the problems that you encountered in space allocations, environment conditioning and installation of switches.

Mr. JOHNSON. Would that be in writing or right now, that will be fine.

Mrs. BOGGS. Whatever.

Mr. FAZIO. If you want to mention it right now, that will be fine.

Mr. JOHNSON. The space thing was two aspects, one in our own building, which is already a government-owned building, we did have existing area, but it was not large enough. It was used for telephones, but it wasn't large enough for the actual installation of the switch. So that room had to be enlarged, people led to be moved. We needed air conditioning, and we also needed ventilation for batteries because our system runs around the clock on batteries, it does not run on alternating current from the local power company.

The second thing was out of the six switches, five are installed or are going to be installed in leased buildings, five different landlords to negotiate with. In one building we went through two or three different landlords during the course of the negotiation phase because of changes in ownership. In another building, the area we

wanted to install the switch was already leased to a parking company, which was doing very good business and had no interest in subleasing. So we had a number of delays. At this point in time, we do have leases for every switch site that we require and construction is underway or installation is underway in all those locations.

Mrs. BOGGS. Thank you very much. Thank you, Mr. Chairman.

Mr. FAZIO. Thank you, Mrs. Boggs. Thank you, gentlemen.

We appreciate your assistance.

TUESDAY, APRIL 29, 1986.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

WITNESS

BRIAN HERR, MANAGER OF TELECOMMUNICATIONS OPERATIONS

Mr. FAZIO. We now would like to ask Mr. Brian Herr, Manager of Telecommunications, from the Massachusetts Institue of Technology to come up to the table. MIT recently completed the acquisition of a new telecommunications system for their campus at Cambridge, Massachusetts. The MIT procurement, though somewhat smaller in technical size, with approximately 15,000 lines, is similar to the requirements of the Congressional campus on Capitol Hill. Various proposals, including one for AT&T System 85's, were evaluated. A contract was ultimately awarded to AT&T in September, 1985 for the procurement of a large Electronic Switching System (ESS). An independently procured fiber optic cable system is being installed throughout the campus as the first phase of the telephone system upgrade. Operation of the new ESS system is scheduled for June, 1988.

The MIT has combined its data and telecommunications into an information management staff which will be augmented on a phased basis over time to operate and manage the new system.

Mr. Herr is very kind to be with us today to share his experience with us. We appreciate your willingness to help us out.

Mr. HERR. Thank you, Mr. Chairman.

Mr. FAZIO. If you want to make some general statements, we have a few questions, but we won't keep you too long. We appreciate anything you might want to place on the record based on what you understood were our areas of inquiry and what you may have heard this morning.

OVERVIEW OF SYSTEM

Mr. HERR. I thought I could tell you a little bit about what our situation is and what we are looking for in our new system. The general background is we actually have two systems. One is a 11,000 line Centrex system provided by New England Telephone. The other is a dormitory telephone system which is a 3,000 line step-by-step switch, which is approximately 1930s technology. We have substantial need for data communications, as you might imagine, which weren't being accommodated by either of those systems.

There was a need to address data communications. We are talking on the order of ten megabits. I think something similar to your case is the diverse community of people. We had some organization elements which are up to speed on communications, pushing the

state of the art, others that are in the traditional office roles and administrative departments, but nonetheless we felt it was important to have a single system to serve all these people.

There were advantages of providing an overall service rather than fragment the system with various switches. We wanted to bring our telecommunications systems up to the state of the art in technology. We had a problem dealing with New England Telephone because they really weren't responding to our needs. We felt frustrated in trying to address the data problems, as well as others. Costs were a concern, and with the breakup of AT&T, we went through a phase in the early 1980s, where there was at least an alleged intent to push people away from Centrex into PBXs. That supposedly has changed, but I think it points to control. You don't want to be subject to the whim of the operating company, and you want to get a handle on your costs, which one of you gentlemen brought up earlier.

So for those reasons we went out to look for a new telephone system. Our main goals were that we wanted the system to be good for at least the next 20 years, if not longer; we wanted state of the art technology; and we wanted to be able to have that system grow over the coming years. We wanted a lot of flexibility, infinite growth from our standpoint, non-blocking so there would never be a concern over that horizon, and digital and ISDN capability was something we specifically had as a goal. We didn't know much about it a year-and-a-half ago.

If I can address that a minute. The ability to go to a Radio Shack now and buy an answering machine or speed dialer and take it home and plug it in. ISDN will solve that. If a professor is given some unit that is going to attach to a phone system, it is highly desirable we have an ISDN system, as opposed to any proprietary system. I think that is very important.

I mentioned the single system. The other thing is just to state our role in telecommunications. We have a conscious charter. We are in the business of transporting messages, not creating messages and not really processing them in terms of data processing. We got various responses, and people talk about the PBX versus the central office. We felt when we looked at the proposals, there were eight vendors, nine proposals, they broke into two groups, the PBXs and central office switches, even though they would be located on premise. Either system could be located on our premise. Central offices switches are designed to a higher standard of reliability. There is more redundancy built in, there are better diagnostics resulting in easier maintenance.

Because a Central office switch PBX is intended really for an operating company, to be able to turn and re-sell to a resident or a business or whatever, that by our having that whole menu of options to, in turn, pass on to other people was seen as being desirable over the PBX. So, therefore, it came down to the Northern Telecom and AT&T's number 5-ESS, and we picked the ESS.

Mr. THOMAS. Why? The story was good right up to the end.

Mr. HERR. Between those two systems, the Northern Telecom switch is really about a 1976 or 1977 technology and is more centralized. The 5-ESS has been designed in the last two or three years. It takes into account the software changes you mentioned

earlier. It is based on that, based on chip technology at the card level, and that came into play in terms of being able to change over the next 20 years as things developed, change our cards and not have to go back and purchase the whole system over again from scratch. It did come down to, as the ISDN technology hasn't been installed anyway, we are buying into the future, so it was a choice of do we make a little bit of a leap of faith or go with the proven work horse, which was Northern Telecom.

IMPLEMENTATION PROCESS

Mr. FAZIO. I want to ask some basic questions you heard me ask the prior witnesses just to get some information on the record. How about the time lag for implementation? If you could tell us about that and some of the problems that may have occurred. You are not fully implemented yet, are you?

Mr. HERR. No, we are not. We are looking at cutting over to the new system in June of 1988. We completed the contract signing about five months ago.

Mr. FAZIO. You are going to cutover all at once, not in phases? Unlike the State Department, you are going to have everything coming together?

Mr. HERR. That is right.

Mr. FAZIO. No room for error.

Mr. HERR. That is the plan.

SYSTEM OPERATION AND STAFFING

Mr. FAZIO. Are you going to operate and maintain the system?

Mr. HERR. Yes, we are. We will manage the system. AT&T warrants the system for the first year, and we will be doing moves and changes during that period. They are committed to, at our option, provide service indefinitely. We plan to, as time goes by, add or take on more and more of that responsibility. As some of the other people mentioned, we don't feel we are ready to jump into the role of maintaining a 15,000-line switch.

Mr. FAZIO. Do you have any estimate what your staff level requirements are going to be?

Mr. HERR. Yes, I do. The current staff is 27 people. I should point out this is not specifically related to the PBX. This includes the fiber optics network we are in the process of installing now with local networks hanging off that, telex functions, and others. About 16 of those people could be considered for traditional telecommunications.

We are planning to have one manager to oversee the installation, and two others to train write up the detailed orders and communicate with the Departments. We feel we would end up with as many as 50 people compared to the 27 presently. That would be based upon also providing additional operator services.

We are only running from 7:00 in the morning to about 9:00 at night. As we provide greater service to the student community there would be a need to run 24 hours. That is a little up in the air and depends on how much we decide to take on.

Mr. FAZIO. It does seem like you would need a large staff to operate a 24-hour system. It is not a direct analogy to the State Department, for example.

Mr. HERR. I am not sure what they are doing.

DATA COMMUNICATIONS

Mr. FAZIO. We would have to get more specific to determine who was doing what before we could make any proper analysis. I wonder if you could talk to us about the interaction of data that you have to exchange on the campus and the voice communication. What percentage of your traffic do you expect to be data communication?

Mr. HERR. I am guessing a little bit. I would say probably 15 to 20 percent would be data.

Mr. FAZIO. It is about the same as it is here. I thought it would have been more on MIT's campus.

Mr. HERR. It is hard to say. There is a lot of data on point to point circuits, and on the local area networks, and we have no information on those at all.

Mr. FAZIO. Eventually you will have it all within your system, is that right?

Mr. HERR. No, we don't see the 5-ESS or any telephone system capable of that. When we looked at all the systems, roughly 64 kilobits per second was the most you could get through a telephone system. For one megabit and higher data communications requirements we see the local area networks and the spine network as being the way to solve that. Let me clarify that.

We wanted to solve the reliability questions, but at the same time we wanted to give people the ability to do what they want, so the middle road was to establish a fiber optic spine. We control and we define standards for interface to it. The spine network travels all about the campus and if somebody wants to attach their network to that, they can. They can get whatever local area network they want all on their own. They can also use us as a consultant.

A lot of that is where the staff is involved. This is really a new area, and we are building this from scratch. In that way we are providing a network that is defined and reliable and staffed. People can either go their own way or consult with us.

Mr. FAZIO. Is that going to be completely up to them? The users will determine, there is no policy, no cost implications here that come down from the top?

Mr. HERR. Oh, cost implications definitely come into it. But, again, you are dealing with knowledgeable people. If someone can demonstrate it can be done at a reasonable cost, it will be accepted.

Mr. FAZIO. But they have to demonstrate it.

Mr. HERR. Yes.

Mr. FAZIO. You are not letting the powerful Physics Department make up its own mind.

Mr. HERR. Certainly not.

Mr. FAZIO. I find that refreshing and hard to believe. But also very laudable. There are more analogies to the campus and Hill than I would have expected.

Mr. HERR. You have to show people you can do something at a lower cost and better. They will accept that.

Mr. FAZIO. Better is the other question, they might be willing to do it if they got better performance. The cost sometimes, I am sure, is not the highest priority for someone conducting an experiment that is on the cutting edge, as you say. You are going to make everybody come to you and evaluate their proposals.

Mr. HERR. Yes.

COST SAVINGS

Mr. FAZIO. Do you have any estimated savings that you are projecting? Have you tried to quantify what you are going to get out of this transformation of your system?

Mr. HERR. Yes, I do. The savings would be $19 million over a ten-year period, and using a ten percent discount rate, to bring that to present value dollars, that was a $10 million savings.

CLOSING REMARKS

Mr. FAZIO. Well, unless there are other questions of the witness from other members of the panel, I really appreciate your participation.

Mr. THOMAS. Mr. Chairman, just on the question of costs. Obviously it is nice to save money, but you had a problem you had to solve, so costs really were secondary to solid communications. Obviously, it was a factor. Was it weighted?

Mr. HERR. I couldn't really say.

Mr. THOMAS. Could you have sold a network if it had cost the same amount to the folks who said yes?

Mr. HERR. I am sorry, the network being?

Mr. THOMAS. The new system that you are putting in, if it had cost the same as the old one, would you have gone through the process? Do you think they would have changed?

Mr. HERR. Frankly, I think it would have been tough. We have been arguing for space for the last six to eight months. That is a big issue. All things remaining equal, I think MIT would just as soon not have people on their payroll as have them on the payroll.

Mr. THOMAS. So cost was a factor.

Mr. HERR. Definitely. There was definitely the mandate to provide something better, but the system did prove in over what we were doing presently and we have picked up functionality in the process.

Mr. FAZIO. Thank you very much. Mr. Herr, you have responded to our questions very effectively. We appreciate your taking the time to help us out.

TUESDAY, APRIL 29, 1986.

WESTINGHOUSE CORPORATION

WITNESS

WILLIAM C. MURRAY, DIRECTOR OF COMPUTER SERVICES

Mr. FAZIO. Let's continue. At this point I would like to call Mr. William Murray, Director of Computer Services from Westinghouse, and then provide some background on the Westinghouse telecommunications system.

In November, 1983, the Baltimore Division of the Westinghouse Corporation initiated a project to upgrade telephone services. The upgrade was to be accomplished in two major phases. The first phase included competitive acquisition of a 12,000-line digital telephone switching system. The second phase entailed independent competitive acquisition of new telephone sets. The ten-year contract included stabilized rates for the first six years, and maintenance costs for the remaining four years, was awarded in March, 1985 to the C&P Telephone Company of Maryland for digital Centrex telephone switch services. The Northern Telephone Company was selected to provide the new telephones, which are currently being installed.

Mr. Murray, the manager responsible for both telecommunications and computer services, recently concluded the acquisition of a new system. We thank you for your willingness to share your experience with us. If you could begin your testimony the way Mr. Herr did by discussing the system and the problems you encountered, and how you attempted to solve them.

TELECOMMUNICATIONS ORGANIZATION

Mr. MURRAY. You seemed to be interested in organizational and staffing issues so I will describe how we are organized. Our voice and teletype operations have been associated with data processing for many years.

One of the things we did last year was merge all of our Communications Department into one telecommunications organization. That includes the data hardware people, the computer network software people, the telephone operations people and a common planning and engineering group. That is working out very well.

In terms of the scenario, we established our project in November of 1983, which was also directed toward replacement of Centrex. The prime reason for doing that was divestiture, which had increased our costs.

Mr. FAZIO. To answer Mr. Thomas' earlier question, you are driven by cost?

Mr. MURRAY. Definitely.

Mr. FAZIO. We have heard from government, nonprofit and business organizations, and we have received various responses from each.

Mr. MURRAY. We will also say a second reason was the integration of voice and data. It was not the driver behind the project and did not get the senior management attention. With the support of our Corporate Communications Division, which manages the corporate-wide network, we developed an extensive RFP, which went out to seven vendors. At that point, we did a technical evaluation of each response and selected three finalists. These finalists were the System 85's from AT&T, the NEAX-2400 from NEC, and the DMS-100 central office from Northern Telecom, which was offered by the C&P Telephone Company.

INFLUENTIAL FACTORS IN DECISION

At that point, we looked at the non-technical and financial aspects and in December, we reached a decision and issued a letter of intent to C&P. Several factors influenced that decision. Number one, although they all were in the same financial ball park, the C&P required a minimum capital outlay, which impacted the capital outlay.

Two, with the digital Centrex, we would not have to invest in internal facilities, and space is as dear to us as anyone else.

Number three, minimal rewiring would be required since it would operate on existing wiring. We discussed flash cutovers and things like that. The central office system was better suited to a pseudo campus environment.

Essentially our environment is, we have a 10,000-person site. There is a central plant with maybe 10 to 12 outlying buildings, some of which we own, and some of which are across the airport. It is not the luxury of a defined campus, and the C&P central office system was better suited to interconnecting them.

And, finally, and perhaps the most important, we felt we could achieve our objectives without getting into the telephone company business. That is not to say the PBX was not an attractive alternative. It also gave us a cost reduction, and we would be in total control of our own destiny.

IMPLEMENTATION PROCESS

Based upon our long relationship with C&P, we were willing to let them continue to provide our services. After the tariff was approved, we conducted a review of the station configuration requirements. The switch was delivered to C&P prior to the end of the year. We cut over the switch during our shutdown at the end of the year and there were no problems reported at all to me. It was remarkably smooth.

At that point, we were running on a digital switch with old station equipment. Functionality is now being delivered to the terminal user. In January, we started replacing the telephone sets. We are putting in electronic telephone sets at a rate of 1,000 a month. The sets we are putting in are also Northern Telecom digital sets,

and the only time we are rewiring is when we are dealing with 25 pair cable.

The telephone station equipment was a separate RFP which were not based on the switch bids. From an organizational impact, we believe we will acquire an additional two or three people to handle the inventory of station equipment, and the administration of the system. But until we get done with the massive replacement of telephone sets, we are not going to be able to tell exactly how many people will be weed. We are withholding judgment on that.

SUMMARY

In summary, the project has proceeded smoothly from the start, which is unusual, because it has been so long, a time. We expect to achieve all our objectives. Talking about cost reductions, we project we will reduce our ongoing cost conservatively 20 percent over the life of the project. We will get the ability to take advantage of the digital technology and get the administrative requirements that we need. That is basically a summary of the process and the project.

Mr. FAZIO. I thank you. Your testimony was very comprehensive, and you perhaps benefited from sitting here and listening to the others, because you touched on most of the questions we were prepared to ask. We appreciate the very complete testimony you have provided.

Are there any questions from members of the panel at this point? Thank you very much.

TUESDAY, APRIL 29, 1986.

FEDERAL BUREAU OF INVESTIGATION

WITNESSES

INSPECTOR KIER T. BOYD, DEPUTY ASSISTANT DIRECTOR, TECHNICAL SERVICES DIVISION

DAVID W. WADE, SPECIAL AGENT, DIRECTOR OF TELECOMMUNICATIONS

Mr. FAZIO. We will now hear from our final witnesses who are from the Federal Bureau of Investigation. They are Inspector Kier T. Boyd and Special Agent David Wade.

BACKGROUND

The FBI has had on site a central office switching system through the telephone company to serve its special needs. In August of 1984, the C&P Telephone Company offered to replace the switching system in the FBI building with a modern digital system at no cost to the FBI. A five-year rate stabilization agreement was signed with C&P for digital Centrex switching service to serve approximately 4,000 telephone lines/stations. The FBI owns its telephone equipment and will replace the equipment over time with modern instruments. The FBI system is operated and maintained by contractor personnel who possess FBI security clearances.

INTRODUCTION OF WITNESSES

Inspector Boyd is the Deputy Assistant Director of the FBI's Technical Services Division; and Special Agent David Wade is the Chief of Telecommunication Services. They are responsible for telephone and data communication requirements. They have recently concluded an acquisition of a digital telephone switching system for the FBI headquarters building and have procured systems for various field offices throughout the country. We appreciate your participation today.

OVERVIEW OF SYSTEM

Let's begin with an overview of your activities. Perhaps you can tell us what your problems were and how you went about trying to solve them.

Mr. BOYD. We appreciate the opportunity to appear before you to be of any help we can. Listening to the people who have testified before, we are sort of the small kid on the block. We have 59 field offices, each of which has their own phone systems, and we have insisted the switches be on premise for control purposes.

The largest system we have is downtown for our headquarters. We are serving roughly 7,000 people using 4,000 instruments and 3,500

lines. David is the person nearest to the action. He has been in on everything from the day we decided we needed a new system to the present.

Mr. WADE. To add to what Mr. Boyd said, there are 59 field offices, and we try to replace their telephone systems on a ten-year cyclic basis. We pick ten years because that is usually the life cycle for that particular technology.

I might point out that in the FBI field offices, all the switches are competitively procured on an individual basis. We go out and compete each one separately. We do the competition on a delegation of procurement authority from GSA.

Mr. FAZIO. Has that traditionally been the case at the FBI?

Mr. WADE. It started in 1977 with the first competitively procured switch.

Mr. FAZIO. But always by local procurement decisions?

Mr. WADE. Prior to 1977, each location was governed by the phone company that serviced that area. In 1977, we started competing centrally for the isolated offices. In 1974, when we occupied the new Hoover Building a central office service, which was part of the D.C. metropolitan area network was offered to the FBI. The type of service provided from that central office by C&P was Centrex.

NEW SYSTEM FOR FBI HEADQUARTERS

In August of 1984, C&P, which was providing us Centrex service at the time, offered us a rate stabilization agreement which basically guaranteed a 15 to 20 percent reduction in our costs. At the same time, they asked us if it was all right for them to replace the switching system hardware within the Hoover Building. The specific switch they were offering was the Northern Telecom DMS–100, which is a digital switch. We determined, through liaison with the White House, that the same offer had been made to them.

Mr. FAZIO. They initiated this offer, is that correct?

Mr. WADE. That is correct.

Mr. FAZIO. In other words, you didn't solicit it, they were progressively seeking you out?

Mr. WADE. That is right. The Secret Service is responsible for the security of White House communications, so most of my dealings were with the Secret Service people to insure that the switches C&P were proposing met our security requirements and fulfilled our users' needs.

In January of 1985, after we had received all the appropriate approvals within the FBI from both a management and contractual standpoint, we entered into the rate stabilization agreement with C&P, and they proceeded with the planning and installation of the DMS-100.

Mr. THOMAS. Mr. Wade, what was the decision making process? The C&P was going to give you a switch that gives you digital capability with compatibility with the White House and Secret Service. How long did it take you to go through the process, and was there anyone who said "No, we don't want the change"?

Mr. WADE. The process took from August to January primarily because of our evaluation of what security would be provided. I had to insure my upper management there would be no less security

than that provided by the existing switch. In this case, it provides a little bit more security.

SYSTEM SECURITY

Mr. FAZIO. Could you tell us how that additional security is obtained?

Mr. WADE. The DMS-100 is a digital switch, as opposed to the previous switch which was a number 2-ESS switch. The particular DMS units, the one that is installed at headquarters FBI and the one being installed in the White House, are actually encased, so to speak, in a metallic shield. All the cabinets are shielded.

Mr. FAZIO. What do you use, copper?

Mr. WADE. It is actually the same cabinet material. It is an alloy-type material. Each cabinet has its own case front and back which encapsulates the particular elements of the switch. The cabling from those units goes up to an optical isolator device which optically isolates all the signals from within the box from anything going on outside the box in the wiring.

Beyond that, there were no changes made by C&P. We did not change—I correct myself, we did change the switchboard operators' consoles, but that was the only instrumentation that we have changed to date.

From the personnel security standpoint, prior to the new switch, a number of cleared C&P personnel were allowed access to the switch at FBI headquarters for maintenance purposes. Part of the agreement that we reached with C&P, in conjunction with the White House, was that the same group of individuals, which totals approximately 15 technical types, would be responsible for both of the switches, and they would be the only people granted access.

So we basically killed two birds with one stone. We are doing the security background investigations for the White House technical people plus our own, and we have the same personnel doing the maintenance. They actually have facilities in the White House from which they can monitor the operation of both switches. So from personnel security, rather than having to rely on a larger staff of cleared personnel responsible for central offices with the city, we could isolate down to a very small group and do their clearances, update them periodically, things like that.

STAFF REQUIREMENTS

From the personnel standpoint, FBI personnel, I have a staff of approximately 20 people, 13 of which are switchboard operators. They operate the headquarters switchboard, provide intercept capabilities, information, and answer the 324-3000 number. In addition to those, I have seven other employees who manage the telephone facilities throughout the FBI. That is in the case of competitive procurements, they prepare the RFPs, and deal with the contracting people and the actual dissemination, evaluation and selection of the successful vendor. I have two of those seven who are primarily responsible for headquarters, and what they do is maintain records on the locations of instruments, the assignments, moves and changes, everything that normally an administrator would do to support 7,000 people that we have at headquarters.

To give you a typical example, if a particular organization in headquarters relocates, they come to my staff of those two people to advise them how they want the telephones reorganized, things like that. My people create all the orders necessary to have C&P install additional lines, or whatever is necessary, or AT&T to move instrumentation.

REPLACEMENT OF TELEPHONE INSTRUMENTS

Mr. THOMAS. Do you own your own instruments?

Mr. WADE. Yes.

Mr. THOMAS. What is the procedure for the phasing in of new instruments? You are limited now by the handsets you have?

Mr. WADE. That is correct. Just subsequent to divestiture, we participated in the GSA procurement of installed base. So we procured all of the instrumentation in the Hoover Building. We had initially anticipated in the 1985-1986 timeframe to replace the instrumentation at headquarters. This has been deferred basically for budgetary reasons. However, as it turns out, and to add on to what the gentleman from MIT pointed out, with the ISDN technology just over the hill, I think we will probably withhold buying new instruments until we can get a good competitive environment in ISDN instruments.

At the present time, our switch handles just voice communication. However, it is obvious that at some point in the future there is going to be a data requirement. We anticipated that by having the digital switch.

Are there questions I can answer?

SECURITY CONCERNS

Mr. FAZIO. Yes, we may have a few. One of the things that comes to mind is the security issue. Obviously that is a concern to us on the Hill as well. We have a lot of conversation that we try to make very public, but there are some that we are very concerned about the security relationships, particularly in the defense and foreign affairs areas.

You are making a point, it really isn't a matter of where the switch is located, it is essentially a question of whether the equipment is protected with an impenetrable shield that was located on site. Is that the gist of your remarks?

Mr. WADE. In general, for security purposes, for example, in the field offices, as opposed to headquarters, we insist upon a switch being located within our space. That provides physical security to the conversations which occur within the office, within the PBX, so to speak. Once an agent in a field office calls outside of the office, to a citizen or another law enforcement agency, that phone call is subjected to whatever vulnerabilities exist in that particular area. If it goes through microwave, you have the typical interception vulnerability.

The Headquarters is unique in that the switch that is providing us Centrex service is a central office switch located on our premises. We are once again isolated from the outside world with that switch on our premise. If we were to take that switch and move it to a telephone company facility, then each one of the lines going to each one of the phones would have to come from that switch to our building.

Mr. FAZIO. So it is important that you have an on-site switch.

Mr. WADE. Right. We have a lot more vulnerability in terms of quantity of lines when you have an off-premise switch.

Mr. FAZIO. Rather than to protect the lines, then, the switch is on site in a protected situation, the prototype of what we might require.

Mr. WADE. That is correct. Now the difference between the FBI facility here in D.C. and your particular situation is that the FBI building is a closed building. Although we have the tours running through the building, they are isolated within the building. Our building internally is not generally accessible to the public. We do not have a security problem to face there.

RECORDKEEPING

Mr. FAZIO. What about record keeping? That is also a security-related problem for you.

Mr. WADE. As I mentioned, the two individuals who are primarily in the headquarters maintain records on instrumentation line assignments and things like that. Both C&P and AT&T, which under the contract performs maintenance on our equipment instrumentation, both individual companies have to maintain their own records. We maintain parallel records for our purposes so we can ensure the government is getting what it pays for.

Long-distance toll-type information, that is provided to us by C&P in a computerized tape form. Our internal data processing facilities takes that tape and breaks it out in a more manageable fashion so we can hand it out to our divisions to review their phone bills.

Mr. FAZIO. That is a paper security problem at that point.

Mr. WADE. Yes.

NEW SYSTEM IMPLEMENTATION

Mr. FAZIO. You haven't totally implemented the new system, at least you don't have all the new sets in, but have all the promises been kept? Are you essentially getting what you were told you would get by C&P when they initiated this contract?

Mr. WADE. Yes, sir. I have no complaints with the vendor at all. It was a fairly normal cutover, and it was the first that I had ever seen where the new switch was operating before the old switch was turned off and the cutover involved simply turning off the old switch.

We have had since that time, and we are talking six to eight weeks, minor problems which I am sure any system of that size would have such as minor hardware failures in the first couple days. I might point out the new system has not failed for a second to date.

We have had various problems which to me are the result of our conversion from a analog switch to a digital switch. The levels had to be adjusted to meet the different requirements. Whenever you reprogram 3,000 lines you are bound to have a few lines come up short. But I think the night of cutover we had less than 20. Since that time, I can't say that any particular problem has arisen that

is particularly a switch problem related to a hardware or instrumentation problem.

COST SAVINGS DISCUSSION

Mr. FAZIO. Cost savings are pretty good?

Mr. WADE. The cost savings were a result of the new rate agreement, not replacement of the switch.

Mr. FAZIO. You did purchase the telephone equipment earlier?

Mr. WADE. Yes.

Mr. FAZIO. So you actually owned the telephone equipment before C&P proposed its plan?

Mr. WADE. Right. Prior to their coming to us in August of 1984, we had gone through divestiture, we had opted to purchase the instrumentation as part of the GSA procurement. So that when C&P came to us with the offer, we owned the instrumentation, and we told them we were not interested in replacing the entire system. If they wanted to replace their switch, all well and good, but we weren't about to compete.

BENEFIT OF EXPERIENCE

Mr. FAZIO. Unless there are other questions, would you summarize what you have learned that we might benefit from?

Mr. WADE. In terms of some of the statements made by the Arthur D. Little representatives, there is one thing that is critical in a telephone system to bear in mind from the very beginning. That is that the type of hardware and the vendor is really not too tough a problem to resolve. That is going to be handled by the competition. The big thing that you have to determine is since a telephone system is user driven, you have to know what the users need, and you have to insure that you give them no less or no more than what they need. You run into various problems if you do either.

One of the problems I think that you all have to face is the problem of dividing the House and the Senate and other Hill agencies up into separate numbers. I was lucky in that the headquarters switch had one number which serviced everything for the FBI in the D.C. area. Now, to me, that is a user-related problem that you have to deal with. I think the vendors, regardless of whether they are selling the Centrex service or a PBX, are going to be able to adhere to whatever you determine your requirement to be.

Mr. FAZIO. We don't have quite the line authority you have at the FBI.

Mr. WADE. It is quite nice working in the environment that I am with the systems that I have. We have very frugal users out there.

Mr. FAZIO. You do have a major analogy, though, in the sense of our district offices hooked into a central system just as your 59 regional offices. It is a slightly smaller scale analogy than what we have.

Mr. THOMAS. Before C&P approached you, had there been any internal discussions or decisions to purchase a new system upon divestiture? Did you have any working group looking at where you might want to go in the future?

Mr. WADE. At the particular point in time, the first part of 1984, we were looking primarily from my staff's standpoint at what effect divestiture was going to have on our systems? So we were looking at field systems across the board as well as headquarters. 1984 was the tenth year for the system at headquarters, so it would have come up in 1985. We had not gotten into the planning stages for replacing headquarters primarily because we had not been funded to replace the switch. That would have been a major line item in our budget.

Mr. THOMAS. So it is possible to say, then, that had C&P not come to you and made the offer to replace your switch at no cost, you would have in 1985 begun the process of going out and asking for various offers from a number of vendors, and you would have had to have gone through the procedure that others have testified about. C&P cut that short by offering to replace the switch at no charge.

Mr. WADE. Yes.

CLOSING REMARKS TO FBI

Mr. FAZIO. Thank you very much. We appreciate both of you spending so much time with us before and during your testimony this morning. It has been helpful, the security issue particularly is a concern to us.

CLOSING SUMMARY

At this point we have concluded the hearings. We have received a lot of valuable information, most of which is relevant to our problems. We have benefited from these hearings and are now in a position to make better policy judgments on the appropriations that come before us. We very much appreciate the involvement of both Mr. Thomas and Mr. Rose from the House Administration Committee. Your participation added a great deal to the hearing not only in terms of the questioning, but in terms of the knowledge they brought that they used to inform us.

At this point, if anyone would like to comment for the record, I would be more than happy to hear from any of the people on the panel.

CLOSING COMMENTS OF MR. THOMAS

Mr. THOMAS. I have a brief comment. We have gone through much of the same procedures that these witnesses have, and it is always the case, you begin to think the decisions that you have to make are isolated, that the pressures that are brought to bear on you are different than others. It is really refreshing to listen to others and realize a number of people went through the same decisionmaking process, and depending upon your particular needs, I think made choices that were relatively good ones for the needs that they had.

And it just reinforces the fact, after having gone through the process we went through, I thank you for these hearings because it has reinforced my belief we made the right decision based upon the information and the choices that we had to make.

Mr. LEWIS. Mr. Chairman, it has been several years since I spent time with Charlie Rose on this subcommittee. It kind of pushed the horizon at that point. These sessions have been helpful to me just by way of osmosis. It has been a very worthwhile learning experience.

Mr. FAZIO. Thank you.

Mr. Chairman, do you want to comment?

CLOSING COMMENTS OF MR. ROSE

Mr. ROSE. Mr. Chairman, I want to compliment you and your staff on this excellent hearing. The witnesses, the line of questioning and the background material were first rate, and as Mr. Thomas has said, we appreciate the opportunity to participate with you in this. I would like to make a few closing comments. I don't believe that we anticipated all of the things that we should have in the RFPs and I don't think we gave security the level of importance that it deserves. Further, we didn't look at the opportunity for networking among all entities of the Legislative Branch.

I would offer a couple of thoughts, not having been clear with Mr. Thomas—as we do most everything by unanimous consent in our subcommittee. Each large component of the legislature should be free to acquire its own PBX system but that these PBXs should enjoy a high degree of compatibility in interconnectivity with each other. We should begin immediately to develop a plan to tie all of the Legislative Branch PBXs into a single network, and steps should be taken to acquire a central office-type switch to tie all the Legislative Branch PBXs together into a single network to serve as a network hub manager.

I say that very simply, but I quickly add that it isn't going to be easy due to the required resources. The ultimate Legislative Branch system would be a central office-type switch managing all of the PBXs, and I would just hope that you would be stingy with the resources of your subcommittee until you obtain agreements from all of the agencies that want to expand or change their telecommunications systems. They should work together to have this interconnectivity ability.

Thank you very much for allowing us to participate, and I would like to ask that my summary statement be made a part of the record.

Mr. FAZIO. We will be more than happy to place it in the record.

[The summary statement of Mr. Rose follows:]

SUMMARY STATEMENT

4-29-86

IN MY OPINION, THE ORIGINAL RFPs PREPARED BY STAFF AND CONSULTANTS OF BOTH HOUSES WERE SHORT SIGHTED IN THEIR DESCRIPTION OF FUTURE DATA REQUIREMENTS AND OPPORTUNITIES. THEY ALSO FAILED TO SPECIFY HOW NETWORKING BETWEEN THE TWO WOULD BE ACCOMPLISHED. NEEDLESS TO SAY, THE OPPORTUNITY FOR NETWORKING AMONG ALL ENTITIES OF THE LEGISLATIVE BRANCH WAS NOT ANTICIPATED AT ALL. FINALLY, THE ISSUE OF SYSTEM SECURITY WAS NOT VIEWED AT THE LEVEL OF IMPORTANCE WHICH I BELIEVE IT DESERVES. FOR THOSE REASONS, I HAVE COME TO THE FOLLOWING CONCLUSIONS AND WILL RECOMMEND THEIR ADOPTION:

1. EACH LARGE COMPONENT OF THE LEGISLATIVE BRANCH (THE HOUSE, SENATE, GAO, GPO, AND THE LIBRARY OF CONGRESS) SHOULD BE FREE TO ACQUIRE ITS OWN PBX SYSTEM.

2. ALL OF THOSE PBXs SHOULD ENJOY A HIGH DEGREE OF COMPATIBILITY AND INTERCONNECTIVITY WITH EACH OTHER AND WITH THE SYSTEM 85s BEING ACQUIRED BY THE HOUSE. TO ENSURE THAT WILL BE THE CASE, NONE OF THE LARGE SUPPORT AGENCIES SHOULD BE GIVEN RESOURCES TO ACQUIRE PBXs UNTIL ALL AGREE TO ADOPT A STANDARD OF COMPATIBILITY AND INTERCONNECTIVITY ACCEPTABLE TO THE COMMITTEE ON HOUSE ADMINISTRATION.

3. STEPS SHOULD BEGIN IMMEDIATELY TO DEVELOP A PLAN TO TIE ALL OF THE LEGISLATIVE BRANCH PBXs INTO A SINGLE NETWORK (INCLUDING A BACKBONE OR SPINE DATA NETWORK THAT MEETS PRESENT AND FUTURE NEEDS FOR HIGH SPEED INTERAGENCY DATA SHARING.)

4. STEPS SHOULD BEGIN IMMEDIATELY TO SELECT, ACQUIRE, AND INSTALL A CENTRAL OFFICE TYPE SWITCH TO TIE ALL LEGISLATIVE BRANCH PBXs TOGETHER INTO A SINGLE NETWORK AND TO SERVE AS THE NETWORK HUB/MANAGER. IT COULD ALSO PROVIDE DIRECT TELEPHONE SERVICE TO LEGISLATIVE BRANCH AGENCIES WHICH ELECT TO USE IT FOR THAT PURPOSE RATHER THEN ACQUIRING A PBX. IT WILL CONTROL ACCESS TO THE LOCAL EXCHANGE PUBLIC SWITCHED (C&P) NETWORK, OTHER GOVERNMENT NETWORKS (LIKE FTS, WITS, AUTOVON, ETC.,) AND INTERCITY PRIVATE SECTOR NETWORKS LIKE DDS, WATS, PUBLIC DATA NETWORKS, AND OTHER COMMON CARRIERS FOR ALL PARTICIPATING AGENCIES. IT IS ALSO A CANDIDATE TO MANAGE

WIDEBAND GATEWAYS BETWEEN AND AMONG COMPUTER CENTERS, LOCAL AREA NETWORKS, HIGH SPEED PRINTERS, REMOTE JOB ENTRY DEVICES, DATA BASE MACHINES, AND A LARGE VARIETY OF INFORMATION SERVICES FOR THE CONGRESSIONAL END USER.

5. NEW POLICIES, PROCEDURES, CAPABILITIES, AND FACILITIES TO ENSURE THE SECURITY AND INTEGRITY OF CONGRESSIONAL TELECOMMUNICATIONS SYSTEMS AND SERVICES NEED OUR PROMPT ATTENTION. HOW CAN THE DOCTRINE OF "SEPARATION OF POWERS" BE LOGICALLY UPHELD IN A REGUALATORY ENVIRONMENT WHERE THE OPERATION OF CONGRESS's OWN TELECOMMUNICATIONS SYSTEM IS SUBJECT TO THE REGULATORY WHIM OF F.C.C. OR THE D.C. P.S.C?

BY CONTROLLING ITS OWN SECURITY UNDER ITS OWN RULES AND REGULATIONS, RATHER THAN THOSE ADOPTED BY A REGULATORY COMMISSION OR AN EXECUTIVE BRANCH AGENCY, THE LEGISLATIVE BRANCH, THE NATIONAL SECURITY AND THE COUNTRY AS A WHOLE WILL BE FAR BETTER SERVED IN THE LONG RUN.

CLOSING REMARKS

Mr. FAZIO. Let me just say, in conclusion, that those of us who have been living with these issues on a regular basis have learned a lot. The way we implement what we have learned through these hearings is by prudent and driving decisions in the direction of cooperation and compatibility.

We have a vision of the Legislative Branch that requires us to think in terms of cost savings. We are continually under pressure in this subcommittee to reduce costs. Mr. Lewis and I and other members of this subcommittee desire to provide more tools in the decisionmaking process. We believe we could, with perhaps a joint committee, or other mechanism between the two Houses of Congress, do more to plan for the future and to adjudicate conflicts between some of the parties at a high level on a policy scale or at a lower level, sometimes purely on a technical issue.

We will miss opportunities if we don't find a way to accomplish that. The entities that have come before us have revealed the importance of the decision-making process. We have to make the best of the situation we find ourselves in as we go to the future. In concert with the House Administration Committee and perhaps other authorizing committees we must develop cost effective plans for the telecommunications system in the Legislative Branch. I think we are all together on that.

I look forward to working with you to implement it. Thank you.

The record will be held open for a short period of time so that interested parties can submit pertinent material relating to telecommunications.

We will now adjourn the hearings on telecommunications in the Legislative Branch.

[CLERK'S NOTE.—The following information was submitted for the record.]

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United States Senate
COMMITTEE ON
RULES AND ADMINISTRATION
WASHINGTON, DC 20510

May 8, 1986

The Honorable Vic Fazio
Chairman
Subcommittee on Legislative Branch
Appropriations
Committee on Appropriations
United States House of Representatives
Washington, D.C. 20515

Dear Vic:

Thank you for the opportunity to describe our plan for updating the Senate telephone service.

I would like to congratulate you on the leadership and foresight you have shown in calling this hearing. Planning for and deciding on telephone services is a new experience for all of us. I welcome suggestions from all sources as I realize that we are making decisions that we will have to live with for a long time. There is planning now underway in all Legislative agencies for updated telephone services. It is important that that planning be coordinated to provide an integrated telecommunications service to the Legislative Branch. We are committed to the principle of an integrated communications service.

I will describe, briefly, the status of telephone service procurement in the Senate.

On April 22, 1986, the Rules Committee met to assess the offers from four vendors. After an extensive and careful evaluation of and deliberation on the alternatives, the Committee selected the offer of The Chesapeake and Potomac Telephone Company to provide an on-site central office, using a Northern Telecom DMS-100 as the switch. Given the special interest of your committee in spending restraint and cost-effective government, I am pleased to inform you that because of the substantial technical parity of all four offers, the role of cost as a selection criterion was amplified even beyond the level identified in the RFP, consistent with normal government procurement principles, and played an important part in our deliberations.

For the record, I have included at the end of this statement a summary of events leading to that decision.

Congressman Rose, in his introductory statement at this hearing, defined several conclusions which can be useful to all of those faced with this issue. His points correspond with the principles that have guided the Senate in arriving at a decision as well as providing an outline which I can use in describing the Senate's position.

1. We agree with Congressman Rose that every major component of the Legislative Branch should be free to acquire its own PBX system. While each vendor under consideration adheres to interconnect standards, each seeks ways to differentiate its product to suit customer preferences. The various components of the Legislative Branch vary in size, structure and mission. It is not unreasonable to believe that different telephone services might be called for. For instance, the House, with more members but smaller member staffs than the Senate, could choose a vendor that would be less satisfactory to the Senate.

2. Compatibility and the ability to connect the various systems within the Legislative Branch is mandatory. Fortunately all major suppliers can and will conform if we insist on it. For instance, each of the four vendors certified that its equipment would support 5 digit dialing and other compatibility conditions regardless of which of the four were chosen by the other house.

3. The Senate is ready to be part of a single network and will be pleased to participate in planning for it.

4. The switch chosen by the Senate, the DMS-100, is capable of operating as either a node or hub in a Congressional network. As a fully functional telephone company central office, the Senate switch could easily serve as a hub to access the local public network and intercity networks such as FTS, WATS, and other commercial services. Alternatively, it could operate as a node to another switch performing as the hub. We are also willing to consider adding one of the smaller legislative units to the Senate switch, providing the additional load would not compromise our capacity.

5. The security and integrity of Congressional telecommunications systems and services are of paramount concern and an important reason that the Rules Committee chose to have

the switch located on Senate premises. Space is precious in Senate buildings but we believe we are well justified in dedicating space to the switch.

Sincerely,

Charles McC. Mathias, Jr.
Chairman

CMM:bs

Enclosure

BACKGROUND

Senate Procurement of a Telephone System

RFP 84-2 was issued on October 1, 1984 by the Committee on Rules and Administration. Responses were received from 6 vendors on January 31, 1985.

Joint House-Senate Investigation

The Senate was joined in its investigation of new phone services by the House Administration Committee at the request of Chairman Annunzio (May, 1985). House and Senate staff, consultants, and representatives of the Architect of the Capitol and the Office of Technology Assessment formed a joint evaluation team. The joint team attended all formal contacts with bidders, such as the oral presentations, user demonstrations and site visits.

Telco Research Co. provided consultants for the Senate and A.D. Little Co. advised the House.

An amendment reflecting additional specifications for the House was issued to the 6 vendors on June 4, 1985. The amendment also required vendors to show cost benefits, if any, that could occur if the House and Senate purchases were combined.

"Best and Final Offers" were received on September 5, 1985 from four of the vendors, American Telephone and Telegraph Information Systems, The Chesapeake and Potomac Telephone Company, Northern Telecom Incorporated, and Rolm Corporation. All vendors certified that their equipment would provide 5 digit dialing to the other House and otherwise be compatible with any of the three competitors. The RFP specifically required offers to be priced on the basis of a combined offer for House and Senate equipment as well as separate pricing for each House. Finding no cost benefit for a combined order, the evaluation teams concentrated their attention on the offer that would best serve their respective House.

The Sergeant at Arms and committee staff presented their recommendations for telephone service for the Senate to the Rules Committee on November 12, 1985. The Rules Committee considered the recommendations of the Sergeant at Arms and committee staff on December 4 and December 10. After discussion, the Committee voted to reject all the pending bids, to issue an amended RFP within 90 days, and to specify that on evaluations the technical points would receive 80 percent of the weight and the cost 20 percent, as opposed to the 75/25 ratio in the previous bid.

On March 14, 1986, the Senate issued Amendment No. 4 to the RFP, advising the vendors of changes to the Senat 's requirements and evaluation criteria, including t : addition of security and compatibility, and apprising each individual vendor of the perceived deficiencies in its own proposal. The Senate received new best and final offers from all four vendors on April 4, 1986. All of the offers were substantially improved and offered enhanced capabilities. These offers were evaluated in accordance with the criteria identified in the amended RFP, as required by the Senate Procurement Regulations.

AT&T

M. A. Brunner
Executive Vice President
Federal Systems
Technology Systems

Suite 303, 1120 20th Street, N.W.
Washington, DC 20036
202 457-3500

May 2, 1986

Mr. Edward E. Lombard
Staff Assistant
Legislative Branch Subcommittee
U.S. Capitol
Room H-301
Washington, D.C. 20510

Dear Mr. Lombard:

During the recent hearings conducted by the Legislative Branch Subcommittee of the Committee on Appropriations, there was considerable discussion regarding the cutover procedure that will be used by the House of Representatives in installing its new telecommunications system. Congressman William M. Thomas asked that AT&T submit the attached document to you for inclusion in the hearing record.

As you will note in the document, the design of the cutover procedures for the House of Representatives is tailored to meet the needs of the Members. In meetings with representatives of the House, a two-phased approach has been designed to minimize any inconveniences that may result from the transition.

I appreciate your including the enclosed attachment in the record of the recent hearing.

Sincerely,

M. A. Brunner

/sls
Attachment
cc: Congressman Vic Fazio
Congressman Jerry Lewis
Congressman Charles Rose
Congressman William M. Thomas

The House of Representatives, working in concert with vendors during the proposal process and with AT&T post-award, has determined that the preferred method for the implementation of the new communications system for the House of Representatives consists of a two stage cutover. The goal of the two stage process is to minimize any disruption to the House and its business while ensuring a smooth, orderly transition to the new system.

AT&T has provided communications service to the House of Representatives for almost one hundred years, and understands the special needs of the Congress. AT&T will work to ensure that all implementation work, System 85s, wiring and telephone sets, will be performed in a professional, non-disruptive manner, just as has been done in past installations and moves. AT&T will meet all requirements of the House of Representatives, including the requirement for all new wiring, unless the House changes its requirements and directs a modification to the contract.

AT&T, through past experience as well as preliminary wiring surveys both prior to and subsequent to the award, recognizes that blocked conduit or lack of conduit may exist in some areas. AT&T does not require any conduit, except for sleeves between walls or floors, from the switch rooms between buildings and through the basements to each telephone closet. All cable in these areas can be "messengered" or tied at the ceiling to existing pipes or cable. The House currently has a large quantity of coaxial and copper cable installed in the basements of its buildings in this fashion. In addition, AT&T does not require conduit between floors; most cable run between floors currently is not installed in conduit. Finally, AT&T will utilize existing conduit or ducts from the telephone closet to the suite. In those instances where conduit is blocked, AT&T will reuse existing wiring until the conduit is cleared. AT&T is eager to work with the Architect of the Capitol to determine the specific requirements of the Congress and the Architect, recognizing that each building presents its own unique challenges and opportunities. AT&T is confident that, working with the House and the Architect, all installation can be accomplished professionally and in a manner transparent to the operation of Congress.

The first stage encompasses the installation of two System 85 digital PBXs, the battery backup system for the System 85s, and all interbuilding and riser distribution wiring systems. In addition, the Switch Management Center will be installed during the first stage if the House elects this

option of the contract. The second stage consists of the installation of all new telephone instruments in Member, committee and support services offices. Included in the installation of the new telephone instruments is the installation of new station wiring which is that part of the wiring that runs from the telephone closet located on each floor through conduit to the telephone set.

As described in Section A, Part I of the Agreement between AT&T and the House of Representatives, the first stage of the implementation process covers the switch cutover. AT&T will install the System 85 and battery equipment as well as the new cable between buildings and between floors of a building in order to effect a "dial tone cutover". This will occur transparently to the telephone users at the House; at some mututally agreed upon point in time the current Centrex system will stop providing dial tone and the new System 85s will start providing dial tone to the existing telephones that are in use today. As directed by the House in its Request For Proposal, AT&T will install new wiring to meet the House's requirement for new uniform wiring.

Once the System 85s have been installed and have demonstrated acceptable performance under the criteria established by the House, AT&T will start the phased telephone changeout, or second stage, of the implementation process. AT&T will work under the direction of the House for the order and pace of telephone changeouts, much like the election moves have been coordinated in past years. Once a suite has been scheduled for new telephone installation, AT&T will survey the office to determine that office's specific requirements, perform the necessary software changes to the System 85's database, install the new wiring from the telephone closet to the telephones in the suite, and install the new instruments. AT&T will utilize existing conduit for the new wiring. In those instances where the existing conduits are blocked and cannot be used for the new wiring, AT&T will reuse the existing wiring. Under the grandfather clause, C&P permits the reuse of existing wiring on a pair for pair basis. The House contract contains an option whereby the House can request that AT&T return to install the new wiring once a previously blocked conduit is cleared anytime during the life of the contract.

Temporary wiring and two phones on every desk were installed at the Supreme Court due to the requirements of the Supreme Court for dual service for thirty days. AT&T will not

install temporary wiring or dual service for the House unless so directed by the House.

AT&T will work with the House to meet all time frames and requirements specified by the House. AT&T will install the new communications system on-site for the House in a fashion which will minimize disruption to the telephone users while enabling the House to enjoy the security and control of a House owned and controlled system.

Bell Atlantic

John A. Morgan
Vice President

6th Floor
8484 Georgia Avenue
Silver Spring, Maryland 20910
301-495-6225

May 12, 1986

Mr. Edward E. Lombard
Staff Assistant
Subcommittee on Legislative Appropriations
U.S. House of Representatives, H301
Washington, D.C. 20515

Dear Mr. Lombard,

Attached, please find C&P Telephone's comments to be added to the record of the Legislative Subcommittee's hearings on telecommunications.

We appreciate having the opportunity to state our position on several important issues discussed in the hearings. If you have any questions on the material or require additional information, please give me a call.

Sincerely,

John A. Morgan

Attachments (4)

Government Systems Division

ATTACHMENT 1

HOUSE APPROPRIATIONS HEARINGS
April 28, 29, 1986

1. During the hearings it was stated that C&P repeatedly told the House Administration Committee that we could not install a switch on the Capitol grounds. It was also stated that security and the location of the switch were "key issues" in the decision making process which resulted in the selection of AT&T over C&P.

   Unfortunately, security was never raised with C&P prior to the Subcommittee decision to award the contract to AT&T. Furthermore, the RFP did not require that the switch be located on the Capitol Grounds. We did, however, suggest if it was a requirement to locate the switch on the Capitol grounds the RFP should be amended accordingly. In fact, we were advised by staff of the House Administration Committee and the evaluation team before our bid was submitted that locating the switch in our Central Office was actually an advantage because there was no space on Capitol Hill to locate a switch.

   Two days prior to Congressman Rose's subcommittee meeting, Mr. Thomas Bolger, Chairman of the Board of Bell Atlantic, met with Congressmen Rose and Thomas to discuss any unresolved issues. The location of the switch and security never came up. After discussing other issues, Mr. Bolger asked Congressmen Rose and Thomas if there were any further requirements of the House that had not been met. Their answer was no.

   However, C&P is perfectly willing and able to locate our switch on the Capitol grounds.

2. Congressman Rose asked a question of the State Department witness that implied that C&P was in some way responsible for the 2 year delay by AT&T in cutting over the State Department System 85. The witness's incomplete answer requires some elaboration.

   The facts are that AT&T placed trunk orders with C&P for the cutover. Late in the installation schedule, they amended their order to add a large number of additional trunks. The time remaining before cutover was months less than the normal interval for C&P to add such a large quantity of Central Office services. At the request of the State Department, C&P expended significant effort to shorten the interval and meet the customers needs.

3. In the hearing it was alleged that C&P "routinely monitors" congressional calls. This is patently false. 18 USC Sec. 2511 makes this practice illegal, specifically prohibiting the willful interception of any oral or wire communications. The Communications Act of 1934, as amended, 47 USC Sec. 605, prohibits the unauthorized disclosure or publication of wire or radio communications. These offenses, if committed, will result in the dismissal of any C&P employee. Attached is an excerpt from the C&P policy statement on the "Privacy of Communications". Each employee is required to review and sign this statement annually.

   18 USC Sec. 2511, (2)(a)(i), outlines exceptions to the above prohibitions for Common Carriers when it is necessary to conduct their business. Both C&P and AT&T fall into the category of Common Carriers when operating and maintaining either Centrex or PBX switches. Any system procured by the House will be operated and maintained by the Contractor, either C&P or AT&T. Both contractor's employees would have access to the switching equipment, however, we find it highly unlikely that either would stoop to such practices. Any employee doing so would risk not only his career, but also criminal prosecution which could result in a fine of not more than $10,000 or imprisonment of not more than 5 years or both.

4. In the hearing reference was made to the Bruce Springsteen concert which caused some dialing problems with the Capitol Centrex and the implication was that the House and Senate would not have had those problems with a PBX system.

   The problems experienced by staff members on Capitol Hill were the result of an unusual number of people within the Capitol attempting to call out at the same time. The House and Senate share over 4,000 trunks from their Centrex to other Central Offices in the Metropolitan area. There are approximately 20,000 staff members who use those 4,000 trunks. On the day in question, there was an extremely high volume of call attempts made from the Hill. Because the called number was busy, many people made repeated attempts. As a result, the Central Office began to experience call processing delays.

   With a PBX, this same situation would have occurred much sooner and it would have created a much bigger problem. Since PBX's are not designed to handle the heavy traffic demands of a Central Office, it is likely that these types of occurrences would happen more often, rather than not at all. The House RFP calls for a PBX to have only 1,500

trunks to the outside world. This means that of the 12,000 people in the House of Representatives, only 1,500 could simultaneously place a call outside the House. It is highly likely, therefore, that repeated call attempts to the busy outside number would have tied up the 1,500 trunks and severely limited dial tone access. Thus, system users would have been unable to make internal calls either.

5. One of the objectives of the hearings was to explore the cost of the present Centrex service and determine what impact the proposed systems would have on the Legislative Branch appropriations. With that in mind, several points need to be clarified for the record.

   a. Present Costs

      The breakup of the Bell System has created several problems and many opportunities for our Centrex customers over the past few years. With conflicting objectives between AT&T and C&P, it has been very difficult to predict future costs for both the C&P Centrex and the AT&T 1A key equipment. In order to mitigate these problems, C&P has taken several steps to try to provide price stability. They are:

      1. In December 1982, C&P offered a bulk purchase of all imbedded telephone equipment to the Government. This was an effort to stabilize the cost of station equipment in the post divestiture era. After January 1983, C&P would no longer be able to control CPE costs since the assets would be transferred to AT&T. Judge Green subsequently turned this contract over to AT&T in early 1983. The House chose not to participate in the purchase of the imbedded equipment.

      2. In July 1983, C&P filed the Rate Stability A tariff which would freeze the Centrex rates until July 1986. The House signed the Rate Stability A contract and has had stable Centrex rates for the past 3 years.

      3. In October 1984, C&P filed the Rate Stability B tariff which would lower the Centrex rates by 10 - 15% and eliminate the CALC charge imposed by the FCC. This tariff would freeze the Centrex rates until December 1990. On October 8, 1984, C&P offered this contract to the House with the additional commitment that we would upgrade the existing analog central office to a DMS-100 digital central office. This is the same offer that was made to the FBI as a part of our central office modernization program. The House chose not to accept our offer.

Several points need to be made with respect to current costs. First, 45.6% of the present telecommunications budget will not be impacted by the replacement of the Centrex since it is related to Long Distance calls and charges for local calls. Second, 44.1% of the current costs are related to the escalating costs for the AT&T station equipment. Third, only 20.7% of the current costs are related to the C&P charges for Centrex.

See attached analysis of the total telecommunications costs for the House.

b. Proposed System Costs

The testimony received from witnesses was unclear about what costs were being discussed and whether any savings projected were related to the existing Centrex or the C&P and AT&T competitive bids.

The following quotes are directly from the transcript of the November 5, 1985 House Administration Committee meeting in which the Committee voted to award the contract to AT&T.

" The exact cost the consultant estimates for the 10 year life of the C&P proposal was something in the range of $17.8 million. The AT&T proposal, as evaluated by ADL was for an LWOP over 10 years. When you figure LWOP (lease with option to purchase), the AT&T price was approximately $25.2 million".

Based on the above testimony, the C&P proposal was $7.4 million less than the AT&T proposal when compared over the 10 year life cycle, on an "apples to apples" basis.

Further testimony: "We will very quickly tell you about another proposal that AT&T made which we are going to recommend to the full committee, and that is outright purchase, of the AT&T equipment at a purchase price of $15.9 million".

There followed a comparison of the AT&T $15.9 million purchase price with C&P's $17.8 million 10 year life cycle cost. But that was an "apples to oranges" comparison since the 10 years of operating costs and maintenance for the AT&T system were ignored. These costs could easily exceed $7-10 million for the lease of trunks and maintenance on the system.

Key members must not have been aware that C&P offered a purchase price of $9.9 million that could be directly compared to AT&T's purchase price of $15.9 million.

With the C&P proposal, the House would pay off all capital costs associated with the equipment and would only have to pay for operation and maintenance of the system over the next 10 years. The House would take title to all telephone equipment located on the Capitol grounds and would have purchased the rights to use the central office switching equipment indefinitely. For legal reasons, title to the central office equipment would not pass to the House, but the House would have an irrevocable right to use the equipment for its useful life.

It was asserted in the Appropriations Hearing that the House didn't want to be subject to the whim of the local Public Service Commission. That is precisely why C&P proposed this payment plan. Once the House has paid off the capital costs, the commission could only impact the costs for operation and maintenance over the next 10 years. All vendors were allowed to increase these costs by the Consumer Price Index each year.

ATTACHMENT 2

United States Department of State

Washington, D.C. 20520

November 4, 1985

Mr. Thomas Gibbons
President
Chesapeake and Potomac Telephone Company
1710 H Street
Washington, D.C. 20006

Dear Mr. Gibbons:

Over the years, the Chesapeake and Potomac Telephone Company has provided the Department of State with reliable and dedicated telecommunications services. There are many occasions over the years where C&P has gone far beyond the basic and essential to provide us with an extra measure of service. We would like to make that request of you once again.

The Department of State has contracted with C&P for the supply and installation of circuits, in connection with the installation of a new telephone switch which will serve the Main State Department building, 2201 C Street, NW, Washington. This switch is the central node of a planned - and growing - network of 8 switches. C&P is providing trunk lines and a large quantity of T-1 circuits between this building and the various satellite switches. AT&T Technology Systems, acting as our agent, ordered, initially, 130 incoming trunk lines in 1984, which were installed in August, and an additional 75 trunks in June 1985, which have yet to be installed.

It has recently come to our attention that the 75 trunks ordered in July will not be available until February 15, 1986. We are asking you to assign the highest priority to providing the additional 75 incoming trunk lines as soon as possible. Without these additional trunk lines we will be unable to cutover to the new switch equipment.

I would greatly appreciate your assistance in this most urgent matter. If you or your staff have any questions regarding our requirements, please feel free to contact me, telephone 632-1638, or Mr. Sandor Johnson, telephone 632-2038.

Sincerely,

John Condayan
Deputy Assistant Secretary
for Operations

United States Department of State

Washington, D.C. 20520

January 27, 1986

GROUP HEADQUARTERS
11/29/86 10:04
11/29/86 2:04
LOG NO. C003 DC

Mr. Thomas Gibbons
President
Chesapeake and Potomac Telephone Company
1710 H Street
Washington, D.C. 20006

Dear Mr. Gibbons:

I want to thank you for the fine cooperation and assistance provided by C&P for the cutover to our new PBX system. This teamwork resulted in a successful cutover, and was due, in large measure to the efforts of a number of C&P employees.

I would like to mention, in particular, Ms. Carol Travis, who coordinated a wide variety of arrangements, ranging from the implementation of the intercept recording to reconnecting lines erroneously disconnected, and who gave expeditious service to priority service orders.

There are several others who also deserve special mention. They include Mr. Joe Hester, who coordinated C&P's role in the crucial areas of the cutover, Mr. Butch Dyson, from the Central Operations Group, who made installation of additional central office trunk lines a high priority, your special assistant, Mr. J. Patrick Bowers, who helped coordinate service from many C&P elements, and the staff of the midtown switching services center, who responded to urgent calls around the clock.

I greatly appreciated the commitment by C&P and its staff that produced this outstanding effort.

Sincerely,

John [illegible]
Deputy Assistant Secretary
for Operations

ATTACHMENT 3

PRIVACY OF COMMUNICATIONS

Through the years, privacy of communications has been basic to our business, not only because it is a requirement of federal and state laws, as well as Company rules, but because the American public has placed its trust in the integrity of telephone company people and equipment.

In recent years, with the ever increasing volume of data transmission over the network, that trust has taken on a special significance. Today it is the responsibility of every C&P employee to protect not only the privacy of conversations on the network, but also the flow of information in data form that in the wrong hands could have serious economic or legal consequences for the parties involved.

The rules for privacy, however, have not changed. They are as simple and inflexible as ever - simple because they are so logical, and inflexible because to violate any one of them could tarnish a reputation that has been earned over many years. The rules are **NEVER:**

- **Tamper with or intrude upon any transmission, either voice or data, or any non-voice communication.**
- **Listen to, monitor, or record any conversation between customers, or transmission of data or other non-voice communication, nor should its existence or contents be divulged except as required in the proper management of the business.**
- **Use, personally or for the benefit of others, information from any communication.**
- **Permit anyone to tamper with communication facilities of the Company or to have unauthorized access to Company premises.**
- **Disclose customer communication arrangements, or information about billing records, equipment, or circuits to any unauthorized person.**

If a law enforcement organization, or any other government authority asks for information that should be kept private - either by law or by Company regulation - refer the request immediately to the Company's Security Organization.

Such rules are, of course, not intended to prevent access to information and communications by Company employees whose duties require it or by law enforcement officials acting with proper authorization through the appropriate channels.

* * *

PROPRIETARY INFORMATION

Much information developed by C&P Telephone or entrusted to its custody or access is proprietary, intended solely for Company purposes. As a valuable business asset, such information must be protected, since unauthorized disclosure could give unfair advantage to others, expose the network and other parts of the business to fraud and malicious damage, and compromise the privacy of communications.

Such things as trade secrets, business, financial and confidential or private technical information are proprietary, as well as records, practices, letters, plans, drawings, computer programs and non-published telephone numbers. In addition, information on equipment, new development projects, marketing plans, rate and cost data, circuit layouts, daily addenda, and most personnel data is proprietary.

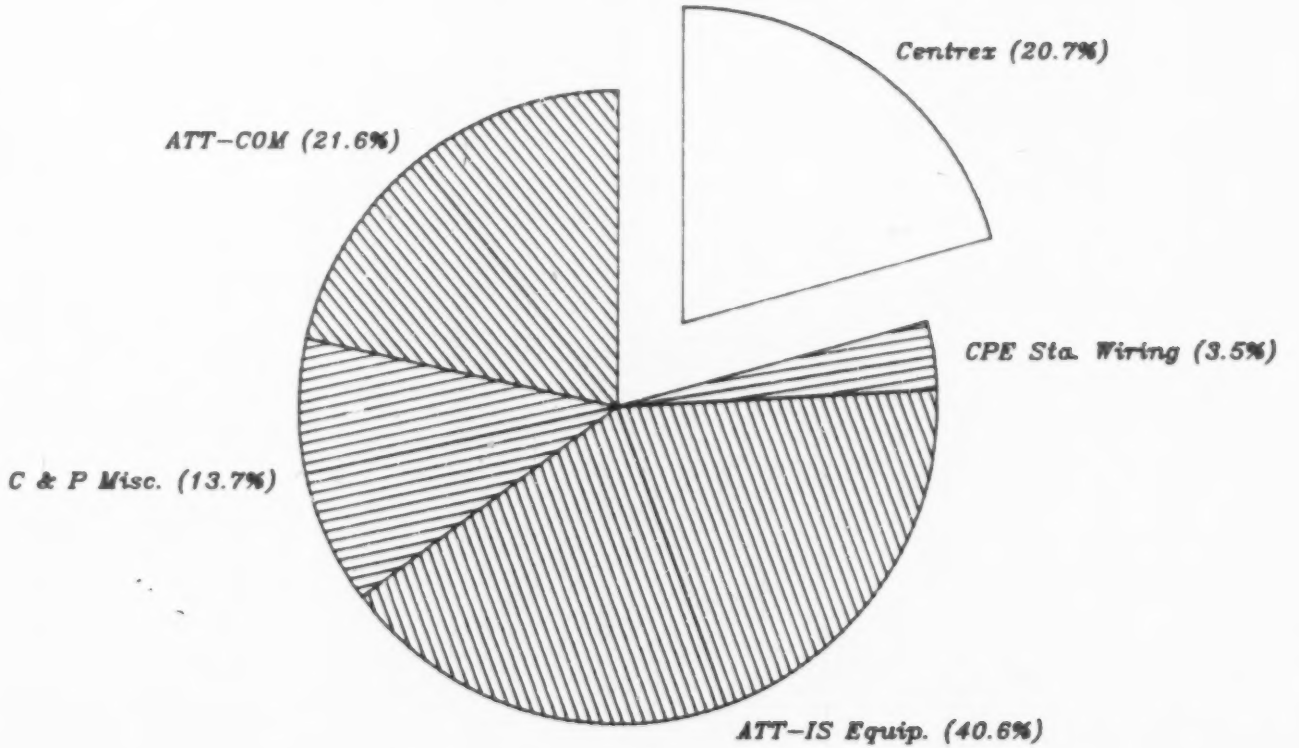
Access to proprietary information should be limited to those having a "need to know." Any disclosure to others, and the receipt of the proprietary information from others, should be in accordance with Company policies. Each employee is individually responsible for the safeguarding and disposal of proprietary information in accordance with the appropriate Company procedures.

The Federal Communications Commission (FCC) has set forth various guidelines stating how any fully separated subsidiary of our parent company, Bell Atlantic Corporation, may obtain common carrier network or customer proprietary information. Network proprietary information has been defined by the FCC as information necessary for intercarrier interconnection or the attachment of customer premises equipment to the network. That information must be made available to all telecommunications carriers or vendors - including a fully separated Bell Atlantic subsidiary, such as Bell Atlanticom or Bell Atlantic Mobile Systems, Inc. - at the same time and under the same terms and conditions. Customer proprietary information has been defined as that private customer information a carrier acquires by virtue of its common carrier activities. Specifically, this is information dealing with particular customers, such as traffic or usage data, or charges and billings.

ATTACHMENT 4

House of Representatives

Total Telecommunications Cost Analysis



House of Representatives
Total Telecommunications Cost Analysis

	Monthly	Annual	Percentage
ATTIS Equipment (1)	$289,170	$3,470,040	40.6
ATTCOM	153,498	1,841,976	21.6
Centrex (2)	147,100	1,765,200	20.7
C&P Misc. (3)	97,714	1,172,568	13.7
CPE Sta. Wiring	24,665	295,980	3.4
	$712,147	$8,545,764	100.0

1. April 1985 Monthly Bill.

2. Rate Stability Plan A, expires July '86.

3. Includes Message units, other charges and credits, C&P toll, and local service (private lines, etc.).

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